

DATA ANALYSIS OF THE LOOP MARINE AND ESTUARINE MONITORING PROGRAM, 1978-95

VOLUME 2: WATER CHEMISTRY

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DATA ANALYSIS OF THE LOOP MARINE AND ESTUARINE MONITORING PROGRAM, 1978-95

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VOLUME 2: WATER CHEMISTRY FINAL REPORT

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Executive Summary

ES-1.0 Introduction

The LOOP facility located off the Louisiana coast, is the only Superport in the lower 48 states. The three single-point mooring (SPM) structures connected by pipelines to a platform mounted pumping station are located west of the Mississippi River delta, 30 km southeast of Belle Pass in the Gulf of Mexico, in 36 m of water, where the offshore depth contours fold landward. Pumping stations offshore and at the land-based Fourchon Booster Station move the off-loaded crude via several subsurface pipelines to a storage facility located in the intermediate marsh zone of the northern Barataria Bay watershed (about 3 km east of Galliano, LA).

The proposed construction and use of these facilities in an environmentally sensitive area led to questions about various consequential environmental impacts arising from the following activities: (1) oil storage caverns were created by leaching out a salt dome at Clovelly. The water used to leach the cavern was sent, by pipeline, to the offshore disposal site (brine diffuser). This water therefore bypassed the usual route through the estuary; (2) the brine (average 200 ppt) and other leachates were disposed offshore into a major US fishing zone; (3) a pipeline corridor and subsequent activities resulted in direct and indirect wetland losses, (4) subsequent economic activities occurred during and after facility operations; (5) many small and a few large oil spills were reported. A water quality environmental sampling program was established by the State of Louisiana and operated by the Department of Wildlife and Fisheries from 1978 to 1995 to monitor the inshore and offshore area potentially impacted by the project. These are the water chemistry data that are analyzed herein.

The implicit specific objectives of this data analysis were:

- (1) to determine if the seasonal and annual data obtained are useful for monitoring impacts;
- (2) to determine if adverse or damaging environmental impacts occurred;
- (3) to determine the cause of environmental damages or alterations;
- (4) to evaluate long-and short-term impacts of the project.

ES-2.0 Potential Impact Periods

The analyses were performed to evaluate construction, brine discharge, and oil spill impacts. Therefore the data was divided into portions that pertained to the appropriate impact:

before construction, during construction, after construction, before the storage caverns were excavated, during continuous brine disposal, after continuous brine disposal, and when oil spills occurred. The nearly continuous offshore discharge of the excavated brine solution through a pipeline and a diffuser of 26 equally spaced ports began in January 1980, and lasted until December 1982, when discharge became intermittent, and lasted for several weeks at a time (Figure ES-1). Observations at the diffuser documented a maximum vertical height of the brine plume approximately 5 m off the bottom, and that the thickness was generally 1 to 1.5 m off the bottom.

Seventy-eight percent of the brine discharged offshore occurred during 1980-82 when the caverns were being excavated with an average brine salinity of 201 ppt. The period from 1983 to 1994 had an annual release rate of 117×10^6 Barrels.

There were 4,316 barrels of oil, (287 barrels/yr) spilled from May 1980 through December 1994 of which 95% was spilled offshore. There were 2,306 pollution incidents involving 10,381 barrels of crude oil in the Gulf Coast in 1984, and in the US there were 10,745 incidents involving 470,214 barrels. The average of 287 barrels/yr at the LOOP site is thus equal to 2.7% and 0.6% of the GOM (Gulf of Mexico) and US amount spilled, respectively. Inshore, eight-seven percent of the oil amount released associated with LOOP operations occurred at the Clovelly storage area. Three major offshore oil spills occurred on April 9, 14 and 23, 1990, of approximately 833 barrels each equivalent to 57 % of all oil spilled from 1980 to 1994 (Figure ES-1).

ES-3.0 The Data Base

The LDWF LOOP water chemistry data base is comprised of the following general groups:

1. Salinity
2. Chlorophyll
3. Dissolved Oxygen
4. Water Quality

The data were collected at a series of monthly and quarterly sampling stations (~40 stations) which were sampled along a gradient which ranged from the LOOP Offshore Terminal to the upper portion of the Barataria Bay System (~Lake Salvador). Data were collected routinely from 1978 through 1995. There were also numerous (up to 40) shorter-term stations

which were intensively sampled during the active phase of the LOOP construction (1978 through 1984).

The percent data return (number of times a sample depth was visited over the entire data set divided by the number of samples taken that are now in the data set) was greater than 95% in most cases. This is excellent performance for a monitoring project of this size.

ES-4.0 Statistical Methods

All of the ANOVA and BACI statistical analyses were conducted using the data stations with the longest records (15 years or older; Figures ES- 2 and ES-3). Correlations among sample depths for each variable were also computed and more detailed statistical analyses done, including Analysis of Variance Modeling (ANOVA) Regression Analysis, Factor Analysis, and Before-After, Control-Impact (BACI).

ES-5.0 Results and Discussion

ES-5.1 Correlation Analyses

The results of the correlation between surface and bottom water chemistry variables indicate that the surface and bottom values are well correlated for all variables at the estuarine stations. The offshore stations exhibit weak correlations between surface and bottom for all variables except for Sulfate, TKN, and TP.

The results of the factor analysis indicated that the variance in the data can be explained by four or five factors in all cases (Table ES-1). The factors explain about 73% of the total variance for the estuarine stations and 60-65% of the total variance in the offshore stations. In all cases, the first (and most important factor) was a salinity grouping which explained 20-36% of the variation in all cases. The remaining factors were generally comprised of a "turbidity" (Turbidity, TSS, SS, TDS) factor, a "nutrient" factor (TKN, TP), an "Oxygen" factor, and a "Chlorophyll" factor.

LDWF, LOOP Oil Spill and Brine Discharge Data

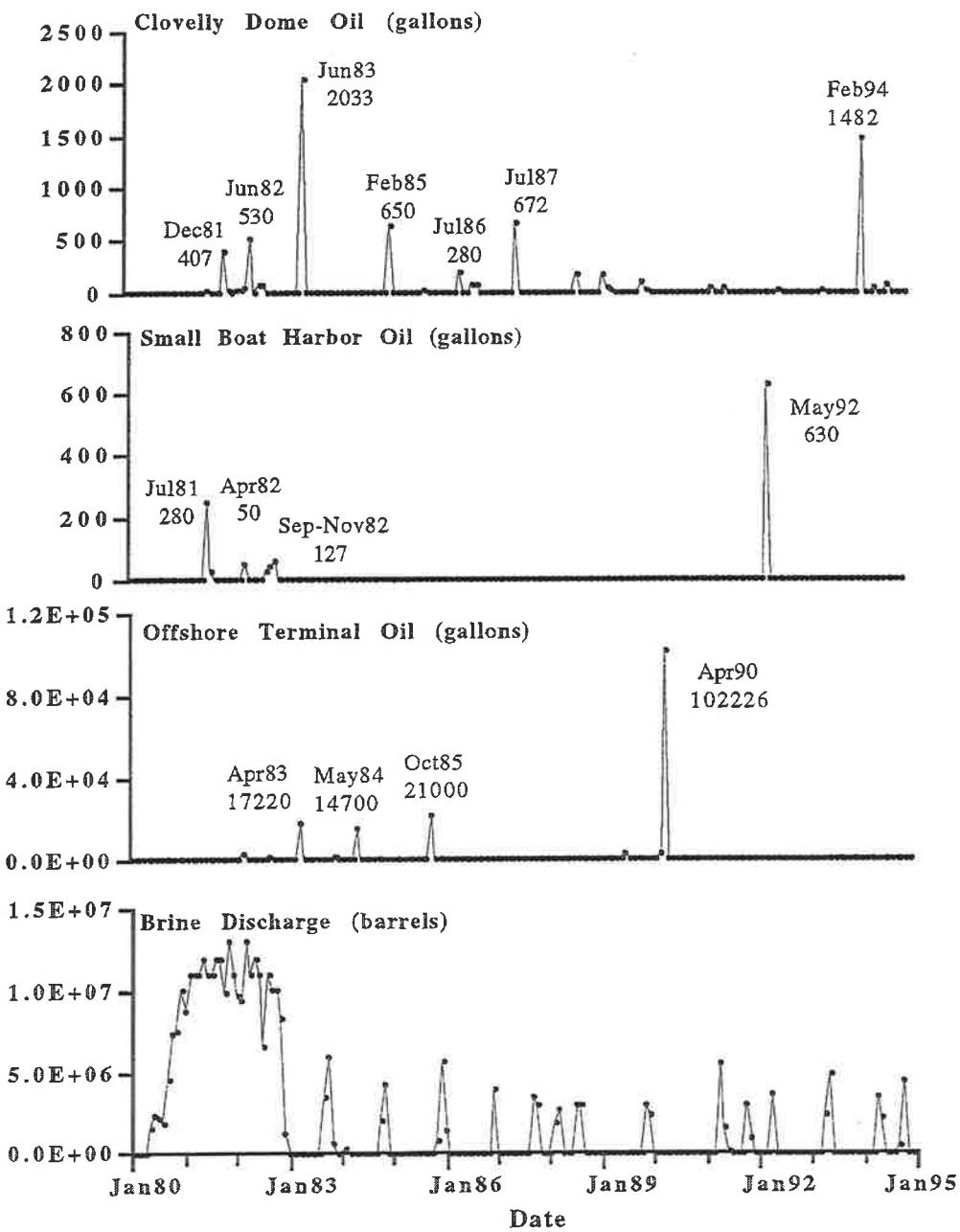


Figure ES-1. Time series plots of (top to bottom) gallons of oil spilled at the Clovelly Dome oil storage area, the Fourchon small boat harbor, the offshore terminal, and the barrels of brine discharged at the offshore diffuser. The dates and amount of oil spilled, for the more noticeable peaks on the plot, are listed.

LDWF-LOOP: Water Chemistry Stations for BACI Analysis

Circle = Construction, Square = Brine Discharge

Filled = Control, Open = Impact

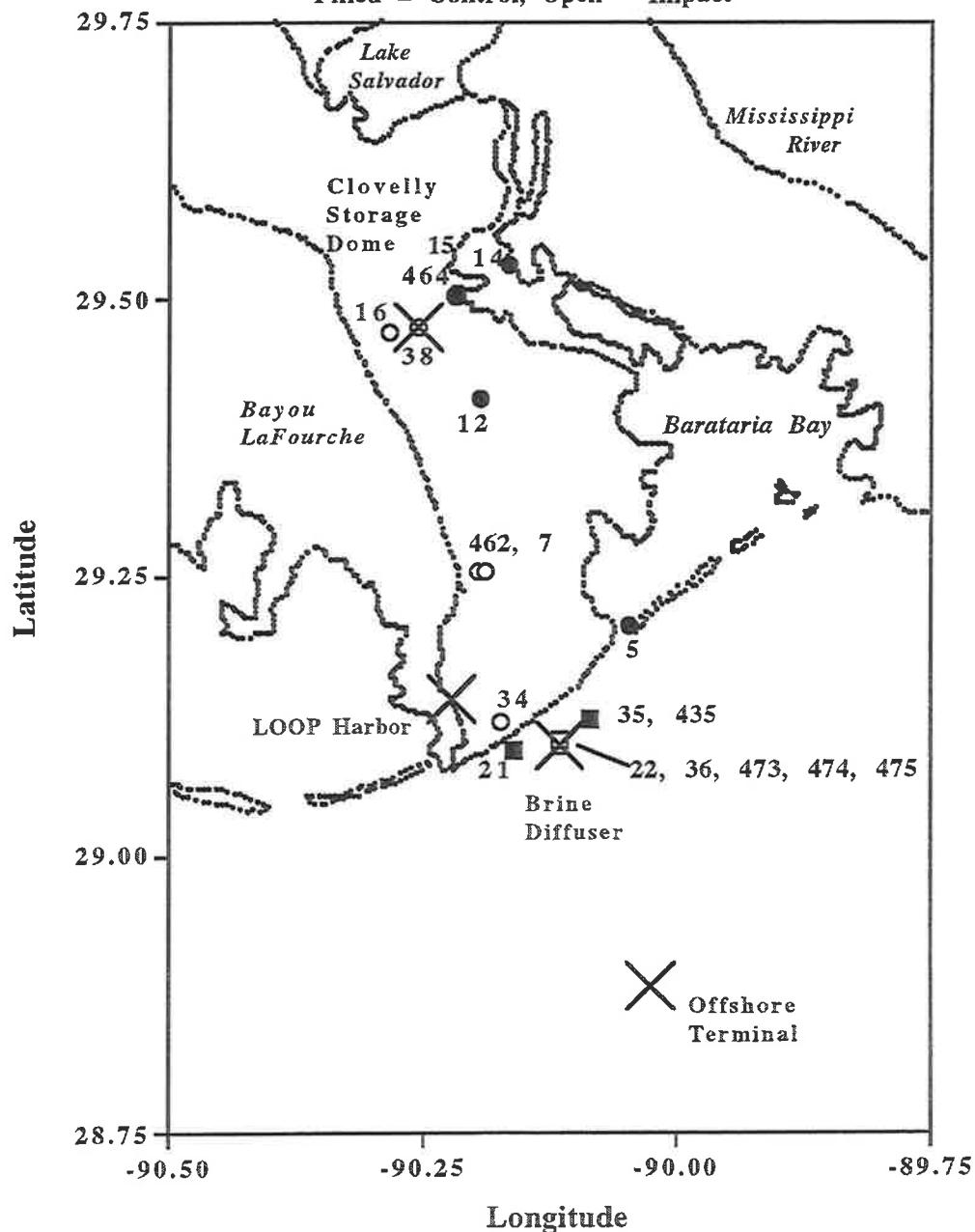


Figure ES-2. LDWF LOOP Water quality stations used in the BACI analysis for LOOP construction (circles) and brine discharge (squares). Filled symbols correspond to control stations and open symbols correspond to impact stations.

LDWF-LOOP: Water Chemistry Stations for BACI Analysis

Circle = Clovelly Oil Spills, Square = Offshore Oil Spills

Filled = Control, Open = Impact

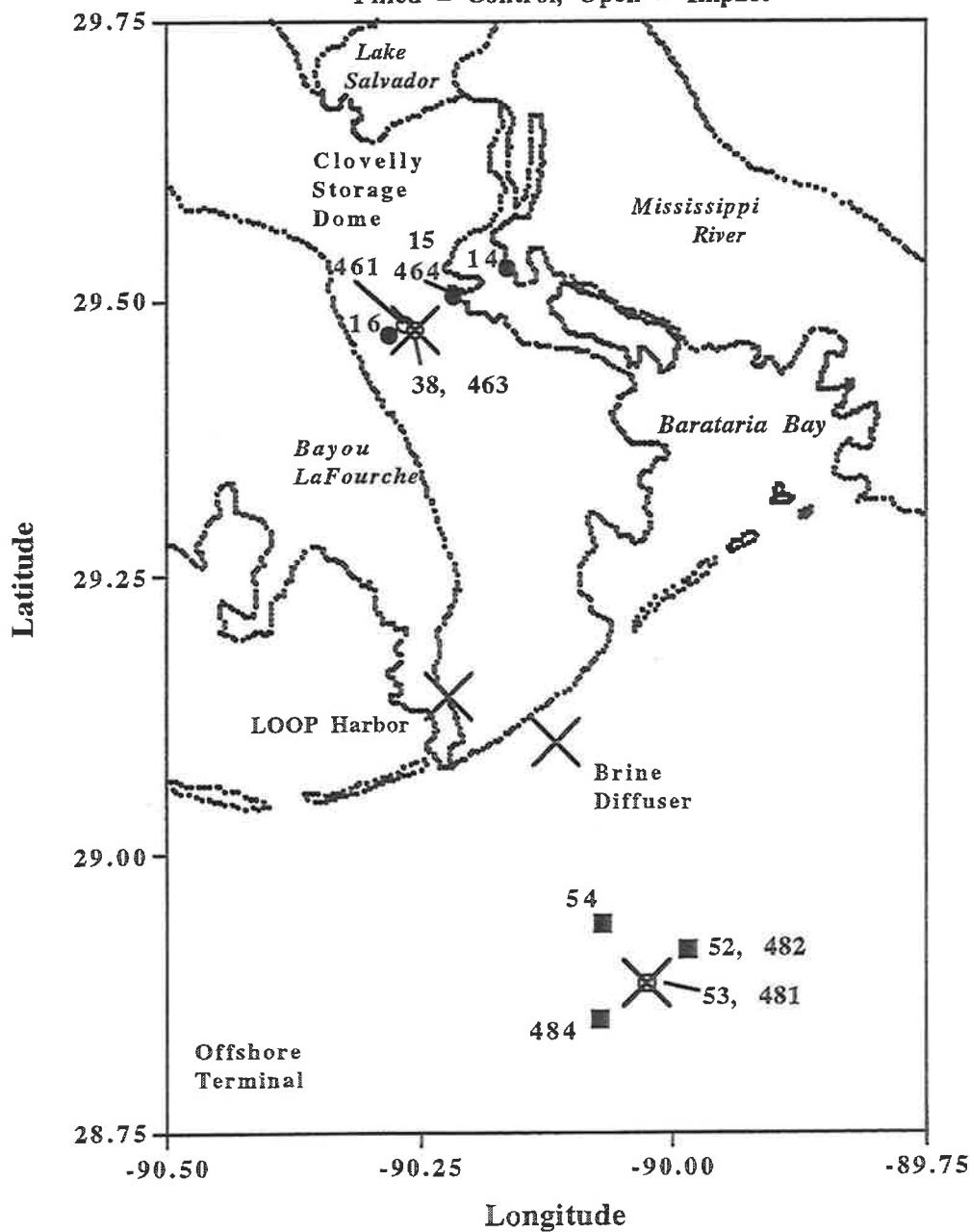


Figure ES-3. LDWF LOOP Water quality stations used in the BACI analysis for Clovelly Dome oil spills (circles) and offshore oil spills (squares). Filled symbols correspond to control stations and open symbols correspond to impact stations.

ES-5.2 Spatial Patterns

The general spatial patterns can be summarized as follows. Salinity shows an increase (from ~5 ppt to ~30 ppt) from the upper Barataria System to the offshore terminal. Most of the nutrients (Ammonia, Phosphate, Silica, TKN, and TP) show a similar pattern of decreasing values from the upper part of the Barataria system to the offshore terminal. The exception is Nitrate-Nitrite which is lowest in the mid-portion of the Barataria system and higher in the upper portion of the Barataria system and at the offshore stations. Turbidity and suspended solids have a similar pattern to the nutrients, in that they decrease from the upper portion of the Barataria system to the offshore terminal. In addition, these variables also exhibit reduced variability in the offshore stations. Total Dissolved Solids and Total Solids follow the same general pattern as Salinity, since they are highly correlated with salinity (the salt is a major component of the solids). Sulfate and Calcium both show increases in magnitude as well as variability from the upper part of the Barataria system to the offshore terminal. Alkalinity has the same value (~100 mg/l) throughout the whole system, however the offshore stations show reduced variability. Chlorophyll_a also shows a decrease from upper Barataria to the offshore platform. Oxygen exhibits a pronounced seasonal variation in the upper portion of the Barataria system, however this seasonal pattern is much less pronounced at the offshore stations.

The brine diffuser began operations during a period of decreasing oxygen in the general area, but that change should not be attributable to the LOOP Superport operations. The salinity, dissolved inorganic nitrogen and Chlorophyll_a concentrations varied tremendously from year to year. These changes are observed over the whole shelf and are part of a regional phenomenon attributable to changes in the Mississippi River water quality.

ES-5.3 Temporal Patterns

The mean trends for each area (inshore, offshore) were calculated using only the individual station trends that were significant at the 0.05 level. In general, only about a third of the water chemistry variables (there are a total of 16) showed statistically significant and consistent trends.

Table ES-1. Results of a Factor Analysis of the LOOP water chemistry data. The percentage of the variance explained by each factor as well as the variables which make up the factor pattern are listed. Results are given for surface and bottom for both inshore and offshore stations.

<u>Environment</u>	<u>Factor</u>	<u>Variance Explained</u>	<u>Variables in factor</u>
Inshore, Surface	1	33.1	Salinity ,TDS, Calcium, Sulfate, Alkalinity
	2	13.9	Turbidity, SS, Phosphate, Silica
	3	9.8	TKN, TP
	4	9.2	Chlorophyll, Ammonia
	5	7.1	Oxygen
Inshore, Bottom	1	36.7	Salinity, TDS, Alkalinity, Calcium
	2	10.4	SS, Turbidity
	3	9.6	TKN, TP
	4	8.3	Oxygen
	5	8.0	Ammonia
Offshore, Surface	1	25.6	Salinity, TDS, Sulfate
	2	13.9	Turbidity, Ammonia
	3	9.8	TP, TKN
	4	7.2	Chlorophyll, Oxygen
Offshore, Bottom	1	21.9	Salinity, TDS, Calcium
	2	19.2	Silica, Phosphate, Ammonia, Oxygen
	3	9.5	TKN, TP
	4	8.6	SS, Turbidity
	5	6.7	NO ₃ -NO ₂

The monthly surface water chemistry variables which showed statistically significant trends at a majority (>60%) of the stations for either inshore or offshore were:

Silica	negative (-0.15 mg l ⁻¹ y ⁻¹) negative (-4.07 mg l ⁻¹ y ⁻¹)	all inshore stations 57% offshore stations
Sulfate	negative (-186.5 mg l ⁻¹ y ⁻¹) negative (-91.6 mg l ⁻¹ y ⁻¹)	64% inshore stations all offshore stations
Suspended Solids	negative (-4.07 mg l ⁻¹ y ⁻¹) negative (-2.27 mg l ⁻¹ y ⁻¹)	82% inshore stations all offshore stations
Total Kjeldahl Nitrogen	positive (8.14 µg-at l ⁻¹ y ⁻¹) positive (5.00 µg-at l ⁻¹ y ⁻¹)	all inshore stations all offshore stations
Total Phosphorus (TP)	positive (0.03 µg-at l ⁻¹ y ⁻¹) positive (0.33 µg-at l ⁻¹ y ⁻¹)	91% inshore stations all offshore stations
Turbidity	negative (-4.21 NTU y ⁻¹) negative (-0.69 NTU y ⁻¹)	all inshore stations all offshore stations

The quarterly surface water chemistry variables which showed statistically significant trends at a majority (>75%) of the stations for either inshore or offshore were:

Phosphate	negative (-0.34 $\mu\text{g-at l}^{-1} \text{y}^{-1}$)	75% inshore stations, 3% offshore stations
Sulfate	negative (-229.8 $\text{mg l}^{-1} \text{y}^{-1}$)	all offshore stations, no inshore stations
Suspended Solids	negative (-2.62 $\text{mg l}^{-1} \text{y}^{-1}$)	all offshore stations no inshore stations
Total Kjeldahl Nitrogen	positive (3.61 $\mu\text{g-at l}^{-1} \text{y}^{-1}$) positive (12.54 $\mu\text{g-at l}^{-1} \text{y}^{-1}$)	all offshore stations 50% inshore stations

The monthly bottom water chemistry variables which showed statistically significant trends at a majority (>70%) of the stations for either inshore or offshore were:

Alkalinity	positive (0.39 $\text{mg l}^{-1} \text{y}^{-1}$) negative (0.94 $\text{mg l}^{-1} \text{y}^{-1}$)	71% offshore stations 20% inshore stations
Nitrate-Nitrite	positive (0.38 $\mu\text{g-at l}^{-1} \text{y}^{-1}$) negative (0.22 $\mu\text{g-at l}^{-1} \text{y}^{-1}$)	100% offshore stations 40% inshore stations
Oxygen	negative (-0.13 $\text{mg l}^{-1} \text{y}^{-1}$) negative (-0.06 $\text{mg l}^{-1} \text{y}^{-1}$)	all offshore stations 40% inshore stations
Sulfate	negative (-36.7 $\text{mg l}^{-1} \text{y}^{-1}$) negative (-38.4 $\text{mg l}^{-1} \text{y}^{-1}$)	60% offshore stations all inshore stations
Total Kjeldahl Nitrogen	positive (6.24 $\mu\text{g-at l}^{-1} \text{y}^{-1}$) positive (5.04 $\mu\text{g-at l}^{-1} \text{y}^{-1}$)	all inshore stations all offshore stations
Total Phosphorus	positive (0.31 $\mu\text{g-at l}^{-1} \text{y}^{-1}$) positive trend (0.42 $\mu\text{g-at l}^{-1} \text{y}^{-1}$)	all inshore stations all offshore stations

The quarterly bottom water chemistry variables which showed statistically significant trends at a majority (>70%) of the stations for either inshore or offshore were:

Silica	negative (0.17 $\mu\text{g-at l}^{-1} \text{y}^{-1}$)	75% inshore stations no offshore stations
Sulfate	negative (-32.2 $\text{mg l}^{-1} \text{y}^{-1}$) negative (-210.6 $\text{mg l}^{-1} \text{y}^{-1}$)	25% inshore stations 86% offshore stations

Total Kjeldahl Nitrogen positive (5.87 $\mu\text{g-at l}^{-1} \text{y}^{-1}$)	all inshore stations no offshore stations
--	--

The only variables which showed consistent spatial and temporal trends were Total Kjeldahl Nitrogen, Total Phosphorus, and Sulfate. These three variables exhibited trends at surface and bottom in both the inshore and offshore environment. A total of 20 statistically significant trends were detected in the monthly data. The quarterly data only detected 7 statistically significant trends. This suggests that quarterly sampling is not sufficient to detect long-term trends.

ES-5.4 BACI analysis

ES-5.4.1 Construction

The BACI analysis showed no statistically significant impacts that could be correlated with the construction for the variables analyzed.

ES-5.4.2 Brine Discharge

There were some statistically differences before and after (surface Ammonia, surface Sulfate, surface TKN, surface Turbidity, bottom Sulfate, bottom TKN, and bottom Turbidity). However, the Before-After, Control-Impact interaction was not significant, indicating that these differences were not correlated with the brine discharge for the variables analyzed.

ES-5.4.3 Clovelly Dome Oil Spills

There were two statistically significant impacts that could be correlated with oil spills in the Clovelly Dome area: Surface Ammonia and Surface Turbidity. The surface ammonia decreased from 4.04 ug-at/l (before) to 2.01 ug-at/l (after) for the control classes, and decreased from 4.95 ug-at/l (before) to 4.45 ug-at/l (after) for the impact classes. The surface turbidity decreased from 86.0 NTU (before) to 17.5 NTU(after) for the control classes, and decreased from 93.4 NTU (before) to 10.1 NTU (after) for the impact classes. Although these changes were statistically significant they do not appear to be ecologically significant. The bottom turbidity showed a statistically significant interaction without a statistically significant oil covariate term. This indicates that there was some sort of impact which is not correlated with oil spills. Again the changes are statistically significant, but not ecologically significant. The bottom turbidity decreased from 86.0 NTU (before) to 28.1 NTU(after) for the control classes, and decreased from 108.6 NTU (before) to 18.9 NTU (after) for the impact classes.

ES-5.4.4 Offshore Terminal Oil Spills

There was a statistically significant difference before and after in surface Turbidity, and a statistically significant difference between control and impact stations for bottom Turbidity. However, the Before-After, Control-Impact interaction was not significant indicating that these differences were not correlated with the oil discharge for the variables analyzed. Offshore Ammonia did have a statistically significant impact that was correlated with oil spills. The surface Ammonia decreased from 1.87 ug-at/l (before) to 1.13 ug-at/l (after) for the control classes, and decreased from 1.41 ug-at/l (before) to 1.10 ug-at/l (after) for the impact classes. These changes are statistically significant, but not ecologically significant.

ES-5. Discussion

ES-5.1 Analysis of Brine Discharge

The Louisiana Department of Wildlife and Fisheries studied 32 brine plumes in bottom waters using a benthic sled equipped with dissolved oxygen, temperature and conductivity sensors. These results were used to plot the size of the plume vs. the discharge volume. The result was the observation that there is an increase in plume size with brine discharge amounts. The intercept at zero discharge was not statistically different from zero. The range of values extended up to around 400 ha for the largest plume studied. Many times the monitoring stations were located out of the brine plume. The monitoring station most likely to detect changes among the four closest to the brine diffuser is the West station (#475).

The sampling station grid is close enough to detect it when the plume moves in the direction of the sampling station. However, the sampling stations are positioned so that the plume may pass between them. This is a common problem when constructing a sampling design for offshore stations, which has been partially addressed by placing sampling stations around the impact site so that they form an expanding spiral surrounding the impact site at least 2 times. The area impacted by the plume covers a large area (16 km^2), more than is covered by an individual plume on any one day. It is constantly changing directions, and therefore the benthic sampling is more likely to both preserve and experience the chronic impacts of fluctuating and stochastic event frequency. Finally, the variation in the plume may compromise sophisticated analytical techniques, including the BACI analyses.

ES-5.2 Oil spills

The total amount of oil reported spilled during the study interval amounted to less than 5,000 barrels (Figure ES-1) and almost all of it was spilt offshore. Fifty-seven percent of all the oil spilled during the study period occurred in April 1990, in 3 nearly equal, but separate, incidences.

A recurrence interval analysis (Figure ES-4), using the 17 year long data record of oil spills, predicted that a maximum monthly oil spill between 10,000 and 25,000 barrels will occur once in 50 years. This result compares very well with a predicted return period for an individual spill predicted in the Environmental Impact Statement. That report estimated that a single spill of at least 10,000 barrels would occur once every 24 years (close to that predicted in Figure ES-4). The EIS also predicted that the maximum 'credible' spill would be 240,000 barrels, but over a period longer than 50 years. That maximum credible spill is 100 times larger than observed to date, but within the predicted recurrence interval for an event of that infrequency (i.e., a large, but rare, spill).

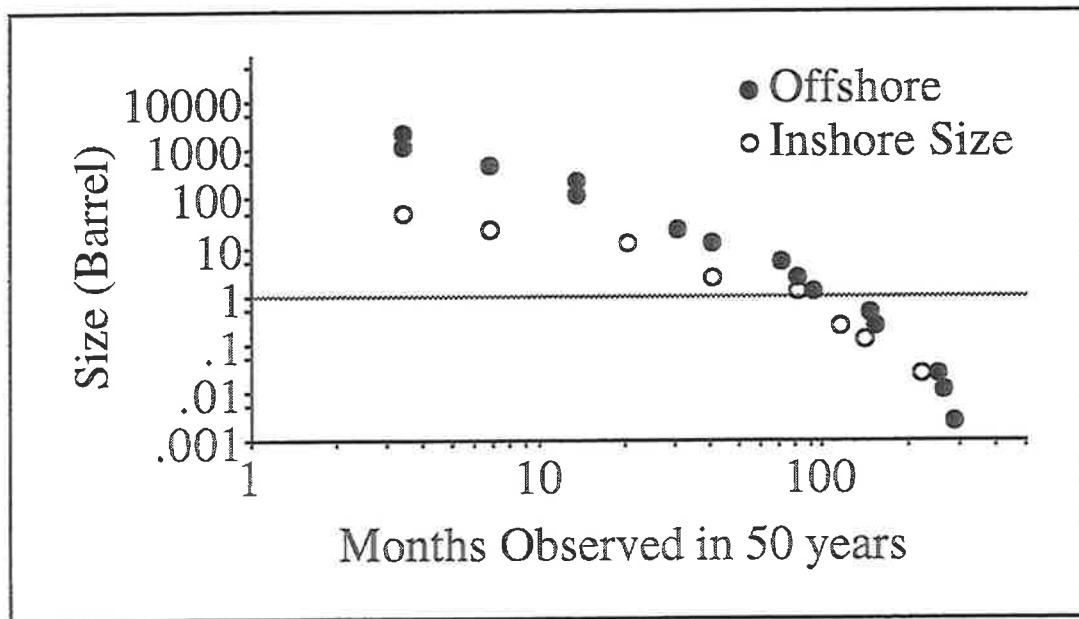


Figure ES-4. The recurrence frequency (calculated using the current oil spill record) of oil spill size for 50 years.

An ANOVA model of the two months before to the two months after the three large April oil spills show significant differences for bottom salinities, surface Chlorophyll_a, bottom sulfate, bottom dissolved oxygen, bottom total solids, and surface DIN. All of the variables had a significantly lower value after the spill. If the time after is extended to 4 months, then only bottom salinity and bottom total solids still show significant differences. However, the observed differences in the later period are quite small, and are probably not ecologically important.

ES-6.0 Implications

Results from an analysis of the water quality parameters measured in this monitoring program showed limited evidence of extensive changes due to the brine disposal operations or the small (<100 barrels) oil spill. The variability of the Mississippi River is a significant complication of the analysis because of its size and proximity to the monitoring stations. An increase in the measured parameter values between a before-and-after impact analysis may not be due to the potential impact factor (e.g., brine), but actually be the results of long-term trends in the environmental forcing function (the river). The fixed present location of the monitoring station network and sampling frequency is often too sparse to detect these impacts, if they exist to a significant degree. These results are consistent with the view that the water masses are moving through the sampling area too quickly to measure impacts on the water chemistry variables. In other words, if an impact has occurred, it is likely that the water mass moved out of the area before the monthly sampling occurred. This does not mean that no monitoring is necessary. An intensive, adaptive sampling program that is implemented when a major spill occurs should be designed with adequate sampling in space and time to document such a spill.

The large oil spill that occurred in April 1990 provided an opportunity to test for impacts from the anticipated much larger spill yet to occur (10X larger in 50 years, and up to 100X larger according to the EMP). There were significant differences in several important parameters immediately after the spill (chiefly phytoplankton pigments, sulfate and dissolved oxygen concentration) in the offshore zone. Tests of their statistical validity are that no similar results were found in the estuarine zone or with longer periods after the spill (up to 4 months later, for example).

The maximum 'credible oil spill' estimated in the original EIS was 240,000 barrels, which is 100 times larger than that spilt through 1996. It is based on a pre-project spill recurrence interval that is substantiated by experience since 1978, and which includes a total monthly spill of about 23,000 barrels. In other words, the recurrence interval graph of the original projections

in the EIS and the subsequent events are nearly coincidental. Fortunately, this very large spill has not happened (yet). We were able to detect changes in water quality in the much smaller spill (about 1% of the predicted largest anticipated oil spill), which should raise concerns about the impacts of a large spill. These results and observations suggest that a credible monitoring program should take into effect the information needs of this larger, yet unrealized oil spill.

ES-7.0 General Considerations for Continued Sampling

This section is a summary of the more detailed discussion (with specific recommendations) that can be found in Task 3. We felt it useful to include it here since that information is in a separate report. The data sets we examined indicated that the current monitoring program, as identified in the original environmental management plan, worked (we were able to document spatial and temporal trends and some impacts); however, some readjustments are desirable based on the experience of the last 17 years.

Water chemistry monitoring measurements are necessary because they serve as ancillary measurements to interpret the background conditions, against which other impacts are measured. Including them in a monitoring program will contribute to the identification of 'false positives', such as mis-identifying an increase or decrease as causally related to an oil spill, rather than to seasonal or long-term changes in the Mississippi River. The monitoring program will be improved by simply continuing the existing sampling.

The maximum 'credible oil spill' estimated in the original EIS was 240,000 barrels, which is 100 times larger than that spilt through 1996. It is based on a pre-project spill recurrence interval that is substantiated by experience since 1978, and which includes a total monthly spill of about 23,000 barrels. We were able to detect changes in water quality in the much smaller 1990 spill (about 1% of the predicted largest anticipated oil spill), which should raise concerns about the impacts of a large spill. These results and observations suggest that a credible monitoring program should take into account the information needs of this larger, yet unrealized oil spill.

The station locations offshore are set in a cross shaped pattern around the diffuser, but the plume appears to move between many of these. Some sort of adaptive sampling scheme (network of vertical profiles, towed vehicle) to collect data on the 3-dimensional structure of the

brine plume should be implemented if major brine discharges occur. This sampling should result in the closure of the plume boundaries to within 1 ppt above ambient salinities.

Current speeds throughout the region suggest that water masses are replaced in days, not weeks or months. Events like a large (yet unobserved) oil spill similar to that predicted in the original environmental management plans, must be sampled within weeks of the event to establish reasonable baseline conditions against which to measure impacts. If the region were homogenous, (e.g., not near the Mississippi River), then baseline conditions might be more safely predicted from less frequent sampling (e.g., quarterly).

The monitoring program should be prepared to mobilize for a Mega-oil spill. The dispersal of surface water and oil will be spread far beyond the LOOP Superport vicinity, and probably spread westward (assuming that is the dominant current direction). However, below the surface, there may be effects spreading in different directions from that in the surface layer.

The analysis of the water chemistry data should be integrated with the biological data sets, on an ongoing basis. For example, the benthic community is the logical analytical subject for competent investigation of impacts near the brine disposal, and for oil spills (past and present). The benthic community is subject to a probable enhancement around the diffuser, if results from other studies are appropriate for this site. The immediate area of the brine plume (about 4 km² for a 1+ ppt plume) sweeps over an area of 16 km². The plume orientation is very responsive to currents, and the plume may move between the stations without detection by the present sampling grid. The LOOP benthic data should be analyzed by benthic ecologists to check on the implications of the results in this report, including: the possibility of a brine plume 'halo' or disturbance area around the brine diffuser; the impacts of the April 1990 oil spills, the presence of brine or oil spill chemical markers in sediments and appearing coincidentally in time or space with changes in the water chemistry, nekton and plankton; detection of long-term trends in the benthic data that can be explained by the regional influences of the Mississippi River.

The water column turns over in a matter of days, because of currents. The area is accumulating sediments, so dated cores might be useful to investigate the halo, if present, around the plume, and to retrospectively determine impacts near the brine diffuser.

The long-term stations should be continued in any re-designed sampling plan. Indeed, the long-term nature of the monitoring effort has numerous invaluable benefits for LOOP, Inc., the State, and the various agencies involved. The LOOP facility is unique to the lower 48 states,

and is of unprecedented economic significance in terms of tonnage and strategic economic positioning. It is located, however, directly in the middle of the finest and largest continental shelf fishing zones in the US and the infrastructure is aging. Improving our understanding of the long-term variations in continental shelf ecosystems (water column to benthos; zooplankton to fish) can only help renewable and non-renewable natural resource users manage this environment together, where necessary, and with informed judgment.

This monitoring program is an exceptionally valuable opportunity for science and management interests. It would be useful to explore ways to open up these efforts on an ongoing basis to provide data for other scientific efforts, and to publish analyses of the data arising from them.

1.0 Introduction

The Louisiana Offshore Oil Port (LOOP) facility located off the Louisiana coast, is the only Superport in the lower 48 states. It was built, and is maintained, by a consortium of large US oil companies called LOOP, LLC., a private corporation owned by Shell Oil Company, Texaco Inc., Ashland Inc., Murphy Oil Corporation, and Marathon Pipeline company. LOOP, Inc. accepted the Federal and state licenses on August 1, 1977 (the US Department of Transportation and the Louisiana Offshore Terminal Authority (LOTA) licenses were jointly issued in January 1977). Its principal economic benefits arise from reducing crude oil transportation costs by as much as \$1.50 per barrel when traveling the roughly 7,000 km long voyage between the Middle East to the US in large crude carriers (up to 250,000 deadweight (dwt)). The three single-point mooring (SPM) structures connected by pipelines to a platform mounted pumping station are located west of the Mississippi River delta, 30 km southeast of Belle Pass in the Gulf of Mexico, in 36 m of water, where the offshore depth contours fold landward. Pumping stations offshore and at the land-based Fourchon Booster Station move the off loaded crude via several subsurface pipelines to a storage facility located in the intermediate marsh zone of the Barataria Bay watershed (about 3 km east of Galliano, LA). The crude is stored in eight caverns excavated from the Clovelly salt dome. The termination area was designed to be near a pipeline distribution system then serving 30 percent of the total US refining capacity. By 1983 the facility had a capacity to off load 1.4 million barrels/day from 200 ships/yr (Brossard 1984). The total movement of oil into the US in 1987 by sea was 6.3 million barrels/day (Kennish 1997, page 100), implying that the designed capacity of the LOOP facility represents a potential 22% of the annual transport of oil into the US. The first off loading of oil was on 5 May, 1981 (1.5 million barrels of Saudi Light).

The proposed construction and use of these facilities in an environmentally sensitive area led to questions about various consequential environmental impacts, found elsewhere (e.g., Boesch and Rabalais 1987; Rabalais et al., 1991; Kennish 1997) arising from the following activities: (1) Oil storage caverns were created by leaching out a salt dome at Clovelly. The water used to leach the cavern was sent, by pipeline, to the offshore disposal site (brine diffuser). This water therefore bypassed the usual route through the estuary; (2) The brine (average 200 ppt) and other leachates were disposed offshore into a major US fishing zone; (3) A pipeline corridor and subsequent activities resulted in direct and indirect wetland losses, (4) subsequently economic activities during and after facility operations; (5) many small and a few large oil spills. An environmental monitoring program (EMP), to monitor the inshore and offshore area potentially impacted by the project, was developed under mandate of the Superport

Environmental Protection Plan (revised, 1977) a regulation of the State of Louisiana implementing the Offshore Terminal Act. Components of the monitoring program include: water chemistry, physical hydrography, brine discharge, zooplankton/ichthyoplankton, demersal nekton, benthos, and sediment quality. The Louisiana Department of Wildlife and Fisheries collected the data related to these components from 1978 to 1995. This report is the Water Chemistry component in a series of five reports that analyze the impacts of LOOP construction, operation, and maintenance on the estuarine/marine (inshore/offshore) environment.

2.0 Objectives

The objectives of this analysis are directly related to the objectives of the LOOP, Inc. Environmental Management Plan (EMP, section 3.1, page 8, March 1986), which are:

- (1) to obtain seasonal environmental and ecological data so that conditions existing during operation can be related to historical baseline conditions;
- (2) to detect during the operation of the project any adverse alterations or damages to the environment so that corrective action can be taken as soon as possible;
- (3) to obtain sufficient data to determine the cause of environmental damages or alterations so that responsibility can be properly placed; and,
- (4) to provide information in order to evaluate long and short-term impacts of the project.

The general objectives of this analysis are to evaluate the water quality data to determine if these are useful to meet these EMP objectives. The implicit specific objectives (using the water chemistry data only) are:

- (1) to determine if the seasonal and annual data obtained thus far are useful for the purposes of monitoring impacts;
- (2) to determine if adverse or damaging environmental impacts occurred;
- (3) to determine the cause of environmental damages or alterations;
- (4) to evaluate long-and short-term impacts of the project.

3.0 Study Area Description

The LOOP facility is located near the terminus of the Mississippi River, which is one of the ten largest rivers in the world in terms of water discharge, length and sediment yield. The salinity regime, turbidity and nutrient concentrations at the discharge site are therefore strongly influenced by daily, monthly and annual changes in the river. This variability adds significant complexity to statistical analyses designed to detect change, and must be considered when evaluating the results. Several aspects of this variability are discussed here to frame the subsequent discussions about the interpretation of the impacts of brine releases and oil spills.

The average monthly discharge of the Mississippi River at Tarbert Landing, La. and an index of drought severity (the Palmer drought index) from 1980 to 1996 are shown in Figure 1. The maximum monthly discharge rate was 6 times the minimum rate, and there was a distinct seasonal cycle, but a cycle that was not symmetrical from year to year. The lowest flows occurred in the winter 1980, fall 1987, and summer 1988. The highest peak discharge months were in 1980, 1983-1986, 1989-1991 and in 1993-4. Moderate drought years occurred in 1982, 1987 and 1988 and 1990. Very moist years occurred in 1980, 1983, 1985, 1988, and 1991 - 1993.

Nutrients in the Mississippi River are often several orders of magnitude higher than the average concentration in the waters of the Gulf of Mexico that mix and dilute the river water. These nutrient concentrations also vary from year to year. Nitrate, an important nutrient limiting phytoplankton growth, has been increasing this century (e.g., Turner et al., 1991; 1994), whereas silicate has been decreasing (Figure 2). Silicate is required for diatom growth, and becomes limiting to coastal phytoplankton communities when it is lower than 1 $\mu\text{g at/l}$, or the DIN:Si atomic ratio (dissolved inorganic nitrogen and silicate) approaches 1:1 (DIN = $\text{NO}_3^- + \text{NO}_2^- + \text{NH}_4^+$). When diatoms, an important part of the coastal food web, are grazed by zooplankton, the fecal pellets sink to the bottom waters, and oxygen is consumed during the subsequent respiration (Rabalais et al. 1996; Sen Gupta et al. 1996). Thus, changes in the nutrients in the Mississippi River may affect the coastal nutrient chemistry and subsequent ecological events at the LOOP facility location. Separating out the effect of these external forcing functions from the effects of brine or oil is a significant challenge for statisticians.

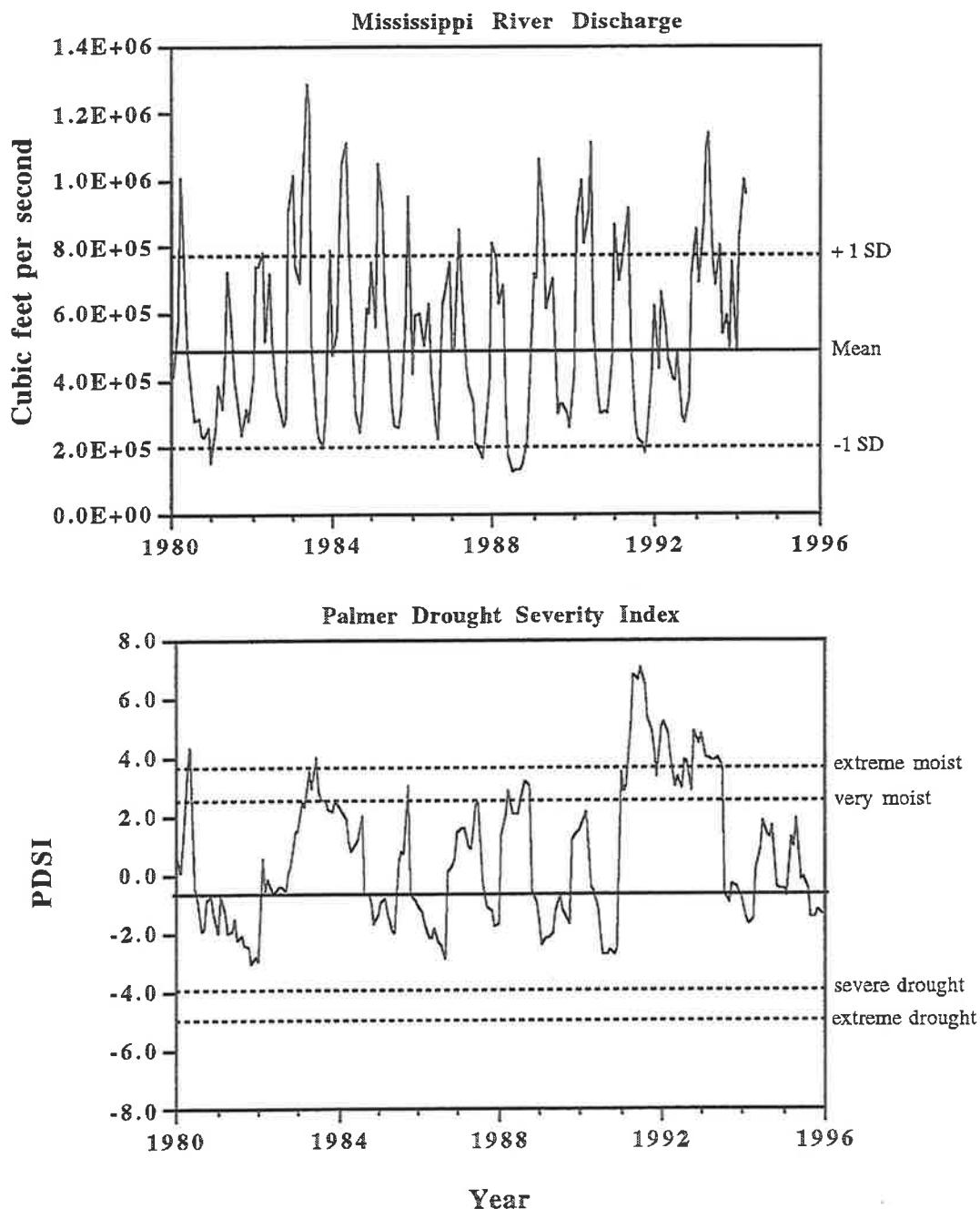


Figure 1. The average monthly discharge of the Mississippi River at Tarbert Landing, La. from 1980 to 1996. The dashed horizontal line indicates ± 1 Standard Deviation of the mean. The Palmer Drought Severity Index (PDSI) is in the bottom panel. The PDSI is a relative index of water supply commonly used by climatologists. The dashed horizontal lines indicate high water supply (very moist, extreme moist) or low water supply (severe drought, extreme drought) levels.

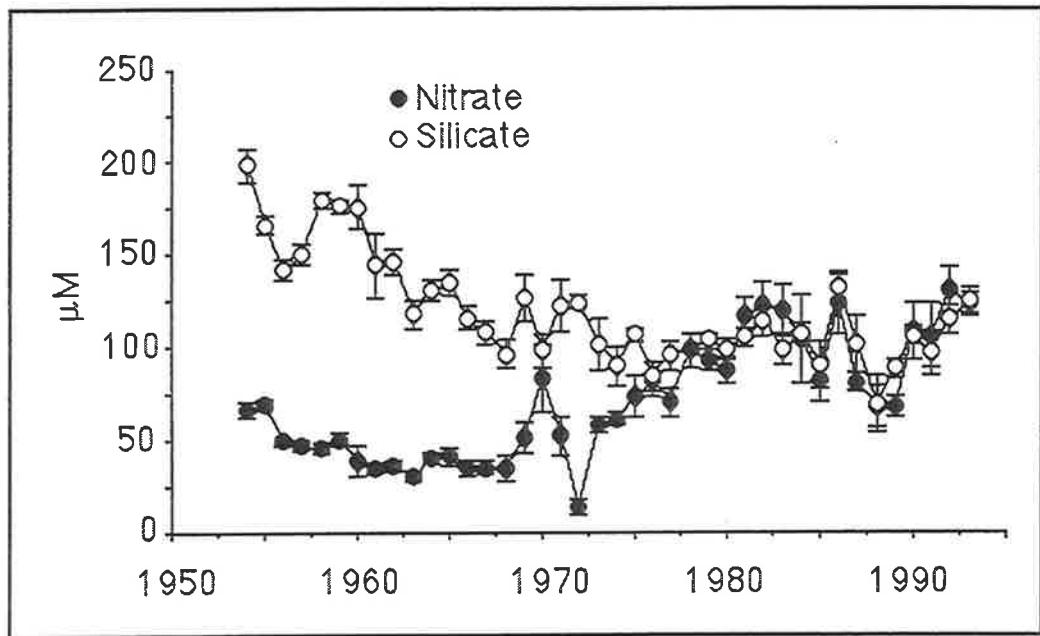


Figure 2. The average annual concentration (± 1 Standard Error) of nitrate and silicate in the Mississippi River at New Orleans. Note the uncoupled relationship between the two variables before 1980 and the coherent changes after 1980 (from Rabalais et al. 1996).

Table 1. Listing of variables on the LDWF LOOP water chemistry data set. Listed, for each variable, is the variable name, a description of the variable, and the units of measurement.

Variable Name	Description	Units
STATION	Sample Station	
YEAR	Year	
SDEPTH	Station Depth	m
DEPTH1	Surface Sample Depth	m
DEPTH2	Mid-depth Sample Depth	m
DEPTH3	Bottom Sample Depth	m
SAL1	Surface Salinity	ppt
SAL2	Mid-depth Salinity	ppt
SAL3	Bottom Salinity	ppt
OXYGEN1	Surface oxygen	mg/l
OXYGEN2	Mid-depth oxygen	mg/l
OXYGEN3	Bottom oxygen	mg/l
TURBID1	Surface Turbidity	NTU
TURBID2	Mid-depth Turbidity	NTU
TURBID3	Bottom Turbidity	NTU
TDS1	Surface Total Dissolved Solids	mg/l
TDS2	Mid-depth Total Dissolved Solids	mg/l
TDS3	Bottom Total Dissolved Solids	mg/l
SS1	Surface Suspended Solids	mg/l
SS2	Mid-depth Suspended Solids	mg/l
SS3	Bottom Suspended Solids	mg/l
TS1	Surface Total Solids	mg/l
TS2	Mid-depth Total Solids	mg/l
TS3	Bottom Total Solids	mg/l
CHLOR_A1	Surface Chlorophyll-a	mg/m ³
CHLOR_A2	Mid-depth Chlorophyll-a	mg/m ³
CHLOR_A3	Bottom Chlorophyll-a	mg/m ³
CL1	Surface Chlorinity	ppt
CL2	Mid-depth Chlorinity	ppt
CL3	Bottom Chlorinity	ppt
ALK1	Surface Alkalinity	mg/l
ALK2	Mid-depth Alkalinity	mg/l
ALK3	Bottom Alkalinity	mg/l
SULFATE1	Surface Sulfate	mg/l
SULFATE2	Mid-depth Sulfate	mg/l
SULFATE3	Bottom Sulfate	mg/l
AMMONIA1	Surface Ammonia	µg-at/l
AMMONIA2	Mid-depth Ammonia	µg-at/l
AMMONIA3	Bottom Ammonia	µg-at/l
CALCIUM1	Surface Calcium	mg/l
CALCIUM2	Mid-depth Calcium	mg/l
CALCIUM3	Bottom Calcium	mg/l
PHOSPHA1	Surface Phosphate	µg-at/l
PHOSPHA2	Mid-depth Phosphate	µg-at/l
T_PHOS1	Surface Total Phosphorus	µg-at/l
T_PHOS2	Mid-depth Total Phosphorus	µg-at/l
T_PHOS3	Bottom Total Phosphorus	µg-at/l
SILICA1	Surface Silicate	mg/l
SILICA2	Mid-depth Silicate	mg/l
SILICA3	Bottom Silicate	mg/l
NO3NO2_1	Surface Nitrate/nitrite	µg-at/l
NO3NO2_2	Mid-depth Nitrate/nitrite	µg-at/l
NO3_NO2_3	Bottom Nitrate/nitrite	µg-at/l
TKN1	Surface Total Nitrogen	µg-at/l
TKN2	Mid-depth Total Nitrogen	µg-at/l
TKN3	Bottom Total Nitrogen	µg-at/l

Table 2. Monthly water quality sampling station summary. Listed, for each station is the station ID, the location (latitude and longitude), the total number of samples, the starting and ending years of sampling, the average number of samples per year, and the depths sampled (S = Surface, M = Mid-depth, and B = Bottom). B indicates that Chlorophyll-a was collected at the surface, and all other variables were collected at the bottom. The following variables were measured: Alkalinity, Ammonia, Calcium, Chlorophyll-a, Nitrate-Nitrite, Oxygen, Phosphate, Salinity, Silica, Suspended Solids, Sulfate, Total Dissolved Solids, Total Kjeldahl Nitrogen, Total Solids, Turbidity, and Total Phosphorus. The stations are sorted by series length.

Station	Lat.	Long.	Samples	Start	End	Years	Samples/year	Depths
5	29.2058	90.0456	211	1978	1995	17	12	S, B
7	29.2550	90.1894	211	1978	1995	17	12	S
14	29.5297	90.1647	206	1978	1995	17	12	S
15	29.5036	90.2161	207	1978	1995	17	12	S
18	29.6594	90.2144	201	1978	1995	17	12	S, B
21	29.0950	90.1608	200	1978	1995	17	12	S, B
22	29.1044	90.1131	198	1978	1995	17	12	S, B
12	29.4094	90.1936	142	1978	1994	16	9	S
13	29.4233	90.1567	185	1978	1994	16	12	S
34	29.1206	90.1728	198	1979	1995	16	12	S
35	29.1228	90.0833	186	1979	1995	16	12	S, B
36	29.1000	90.1150	187	1979	1995	16	12	S, B
16	29.4694	90.2814	88	1978	1993	15	6	S
37	29.1417	90.2211	188	1980	1995	15	13	S, B
38	29.4744	90.2550	188	1980	1995	15	13	S, B
52	28.9133	89.9847	153	1980	1995	15	10	S, M, B
53	28.8850	90.0250	159	1980	1995	15	11	S, M, B
54	28.9367	90.0686	155	1980	1995	15	10	S, M, B
502	29.0972	90.1114	163	1981	1995	14	12	S, M, B
55	28.8633	90.0253	151	1982	1995	13	12	S, M, B
535	29.1228	90.0833	132	1982	1995	13	10	S, M, B
704	28.9961	90.0831	127	1984	1995	11	12	S, M, B
706	28.9417	90.0694	140	1984	1995	11	13	S, M, B
708	28.8842	90.0250	136	1984	1995	11	12	S, M, B
39	29.4731	90.2697	116	1985	1995	10	12	S
1	29.4197	89.9469	76	1978	1985	7	11	S
2	29.2894	89.9303	76	1978	1985	7	11	S
3	29.2717	89.9328	75	1978	1985	7	11	S
4	29.1833	89.9000	65	1978	1985	7	9	S, B
11	29.3347	90.2383	41	1978	1983	5	8	S
507	29.0894	90.1022	55	1981	1986	5	11	S, M, B
6	29.2103	90.1050	46	1978	1982	4	12	S
17	29.6658	90.1622	44	1978	1982	4	11	S
19	29.6908	90.2208	43	1978	1982	4	11	S
31	29.1239	90.1389	41	1978	1982	4	10	S
9	29.2700	90.0322	45	1978	1981	3	15	S
32	29.2256	90.2022	34	1979	1982	3	11	S
33	29.1481	90.2025	35	1979	1982	3	12	S
40	29.4072	90.1864	42	1988	1991	3	14	S
500	29.1039	90.1183	25	1981	1983	2	13	S, M, B
501	29.0964	90.1183	24	1981	1983	2	12	S, M, B
505	29.0956	90.0861	24	1981	1983	2	12	S, M, B
506	29.0872	90.1178	25	1981	1983	2	13	S, M, B

Table 3. Quarterly water quality sampling station summary. Listed, for each station is the station ID, the location (latitude and longitude), the total number of samples, the starting and ending years of sampling, the average number of samples per year, and the depths sampled (S = Surface, M = Mid-depth, and B = Bottom). B indicates that Chlorophyll-a was collected at the surface, and all other variables were collected at the bottom. The following variables were measured: Alkalinity, Ammonia, Calcium, Chlorophyll-a, Nitrate-Nitrite, Oxygen, Phosphate, Salinity, Silica, Suspended Solids, Sulfate, Total Dissolved Solids, Total Kjeldahl Nitrogen, Total Solids, Turbidity, and Total Phosphorus. The stations are sorted by series length.

Station	Lat.	Long.	Samples	Start	End	Years	Samples/year	Depths
8	29.2650	90.1039	62	1978	1995	17	4	S
10	29.2442	90.2603	59	1978	1995	17	3	S
407	29.2550	90.1894	65	1979	1995	16	4	S, B
435	29.1228	90.0833	65	1979	1995	16	4	S, M, B
462	29.2547	90.1961	65	1979	1995	16	4	S, B
463	29.4756	90.2553	65	1979	1995	16	4	S, B
464	29.5019	90.2175	65	1979	1995	16	4	S, B
473	29.1003	90.1133	65	1979	1995	16	4	S, B
474	29.0978	90.1147	64	1979	1995	16	4	S, M, B
475	29.1003	90.1167	64	1979	1995	16	4	S, M, B
481	28.8850	90.0250	62	1979	1995	16	4	S, M, B
482	28.9133	89.9847	62	1979	1995	16	4	S, M, B
461	29.4781	90.2647	62	1980	1995	15	4	S, B
484	28.8511	90.0717	60	1980	1995	15	4	S, M, B
422	29.1044	90.1131	18	1979	1983	4	5	S, B
468	29.0997	90.1217	17	1979	1983	4	4	S, B
469	29.0964	90.1267	17	1979	1983	4	4	S, B
470	29.0906	90.1231	17	1979	1983	4	4	S, B
471	29.0872	90.1161	17	1979	1983	4	4	S, B
472	29.0967	90.1108	17	1979	1983	4	4	S, B
476	29.1031	90.1153	17	1979	1983	4	4	S, B
24	29.6922	90.4675	15	1978	1981	3	5	S
25	29.8300	90.6219	15	1978	1981	3	5	S
26	29.8319	90.6347	15	1978	1981	3	5	S
27	29.8531	90.6308	15	1978	1981	3	5	S
28	29.9300	90.7472	15	1978	1981	3	5	S
29	29.9136	90.7983	15	1978	1981	3	5	S
30	29.9711	90.8692	15	1978	1981	3	5	S
467	29.1047	90.1292	13	1979	1982	3	4	S, B
483	29.7658	90.6339	7	1980	1983	3	2	B
485	28.8661	90.0153	14	1980	1983	3	5	S, B
486	28.8792	90.0025	14	1980	1983	3	5	S, B
434	29.1206	90.1728	10	1979	1981	2	5	B
460	29.1297	90.1458	10	1979	1981	2	5	B
466	29.7739	90.6294	10	1979	1981	2	5	B
477	29.0358	90.0967	8	1979	1981	2	4	S, B
479	28.9367	90.0686	8	1979	1981	2	4	S, B
480	28.9361	90.0597	8	1979	1981	2	4	S, B
20	29.6983	90.1775	2	1978	1978	1	2	S
23	29.1550	90.0950	1	1978	1978	1	1	S
50	28.8089	90.0764	4	1978	1979	1	4	S, B
51	28.9450	90.0308	3	1979	1979	1	3	S, B
408			2	1995	1995	1	2	S, B
410			2	1995	1995	1	2	S, B
419	29.6908	90.2208	1	1979	1979	1	1	B
465	29.7783	90.6283	3	1979	1980	1	3	B
478	29.0358	90.0867	7	1980	1981	1	7	S, B
487	29.0903	90.1056	5	1982	1983	1	5	S, B

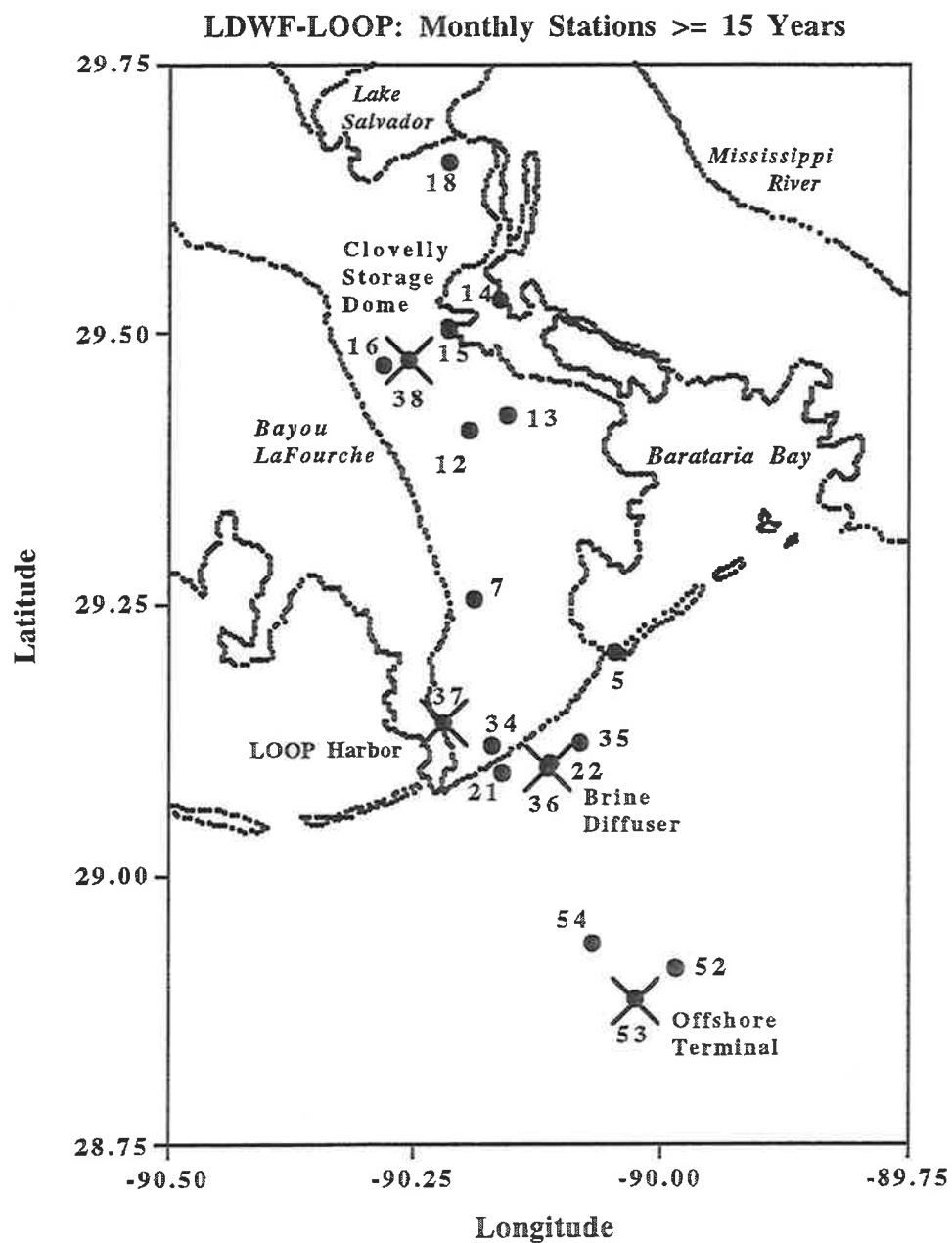


Figure 3. Location map showing monthly stations with long term data sets (>15 years), the site of the Clovelly Storage Dome, the brine diffuser site, and the LOOP Terminal.

LDWF-LOOP: Quarterly Sampling Stations ≥ 15 Years

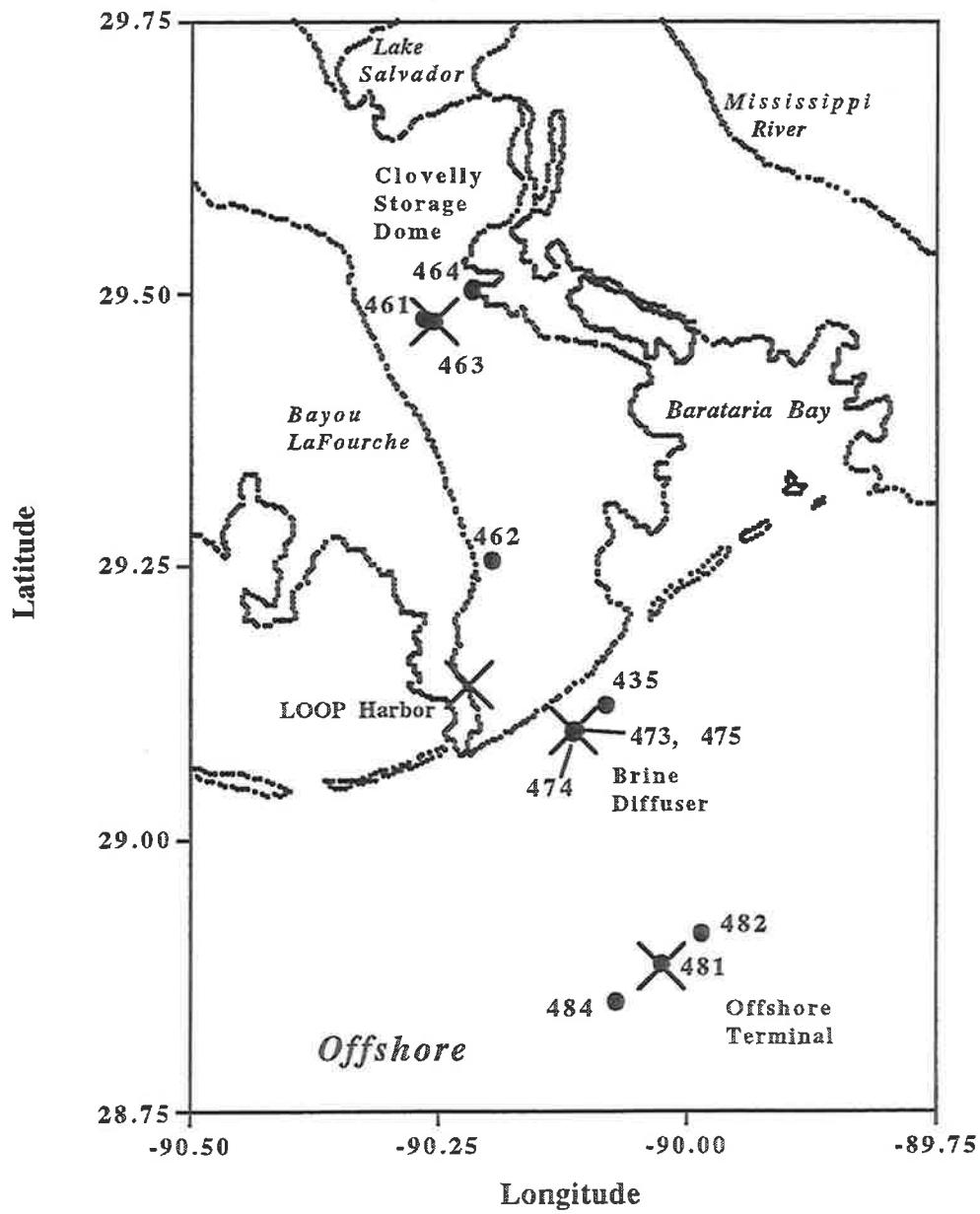


Figure 4. Location map showing quarterly stations with long term data sets (>15 years), the site of the Clovelly Storage Dome, the brine diffuser site, and the LOOP Terminal.

LDWF, LOOP Water Chemistry Data: Sampling Summary

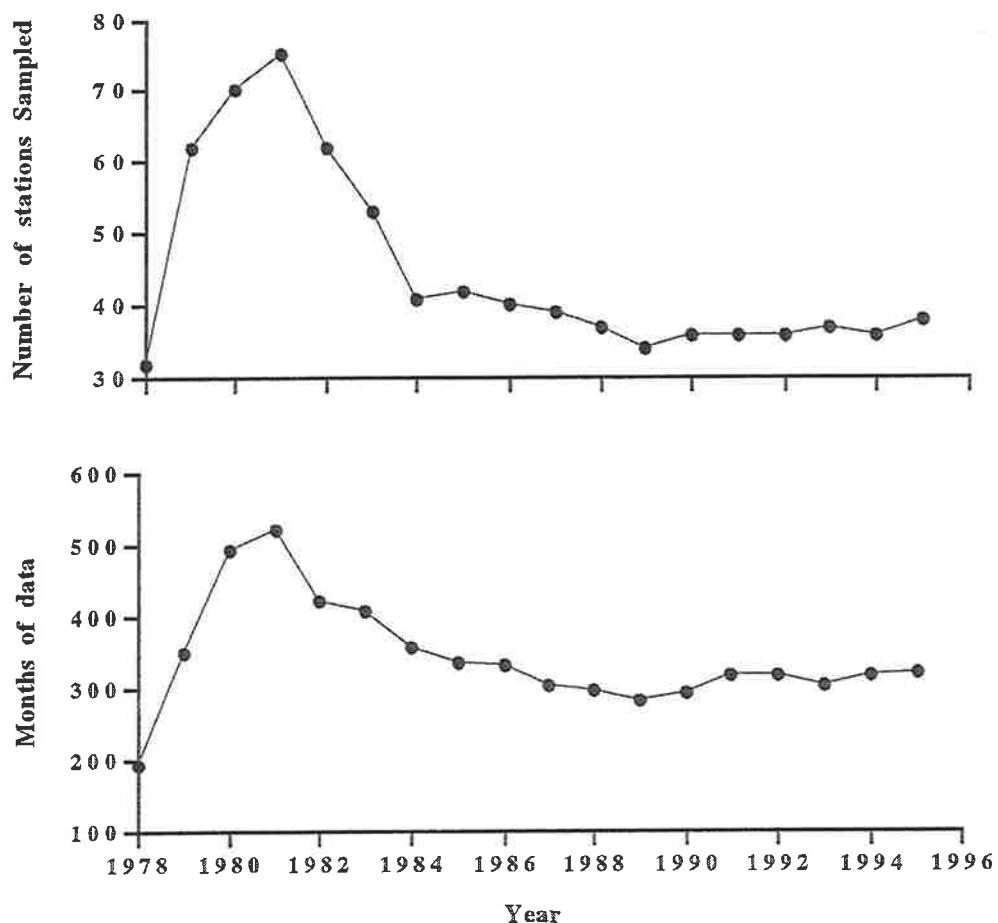


Figure 5. Sampling summary for the LDWF LOOP Water Chemistry stations. The top panel shows the number of stations sampled each year, and the bottom panel shows the number of months of data collected each year. The data cover the period from 1978 through 1995.

The data inventory and QA/QC analysis (Task 1) consisted of the following:

a. Data Inventories

- Total Observations in data set
- Total Observations by variable
- Total Observations by station
- Total Observations by year
- Total Observations by variable, station, year combinations

b. Descriptive Statistics (Mean, Standard Deviation, Minimum, Maximum)

- For the entire data set.
- For each variable
- For each station
- For variables and station by year

c. QA/QC Information

- Lists of potential outliers
- Percent Data return for each variable
- Plots of data distribution
 - Histograms
 - Stem and Leaf
 - Cumulative distribution
- Data Distribution Tests
 - Skewness
 - Kurtosis
- Test for Normality

The percent data return was calculated by dividing the number of times a sample depth was visited over the entire data set by the number of samples taken that are now in the data set. The percent data return for all variables is very high, being greater than 95% in most cases (the mean is 97%). This is excellent performance for a monitoring project of this size. An outlier list was created based upon a review of the data distribution along with discussions with experts in the field regarding what is believed to be the maximum reasonable values for the water chemistry variables. The number of outliers is quite small, being less than 0.5 % in half of the cases. The outliers were not removed from the data set, but only identified. The percent data return and outlier list are presented in Appendix B.

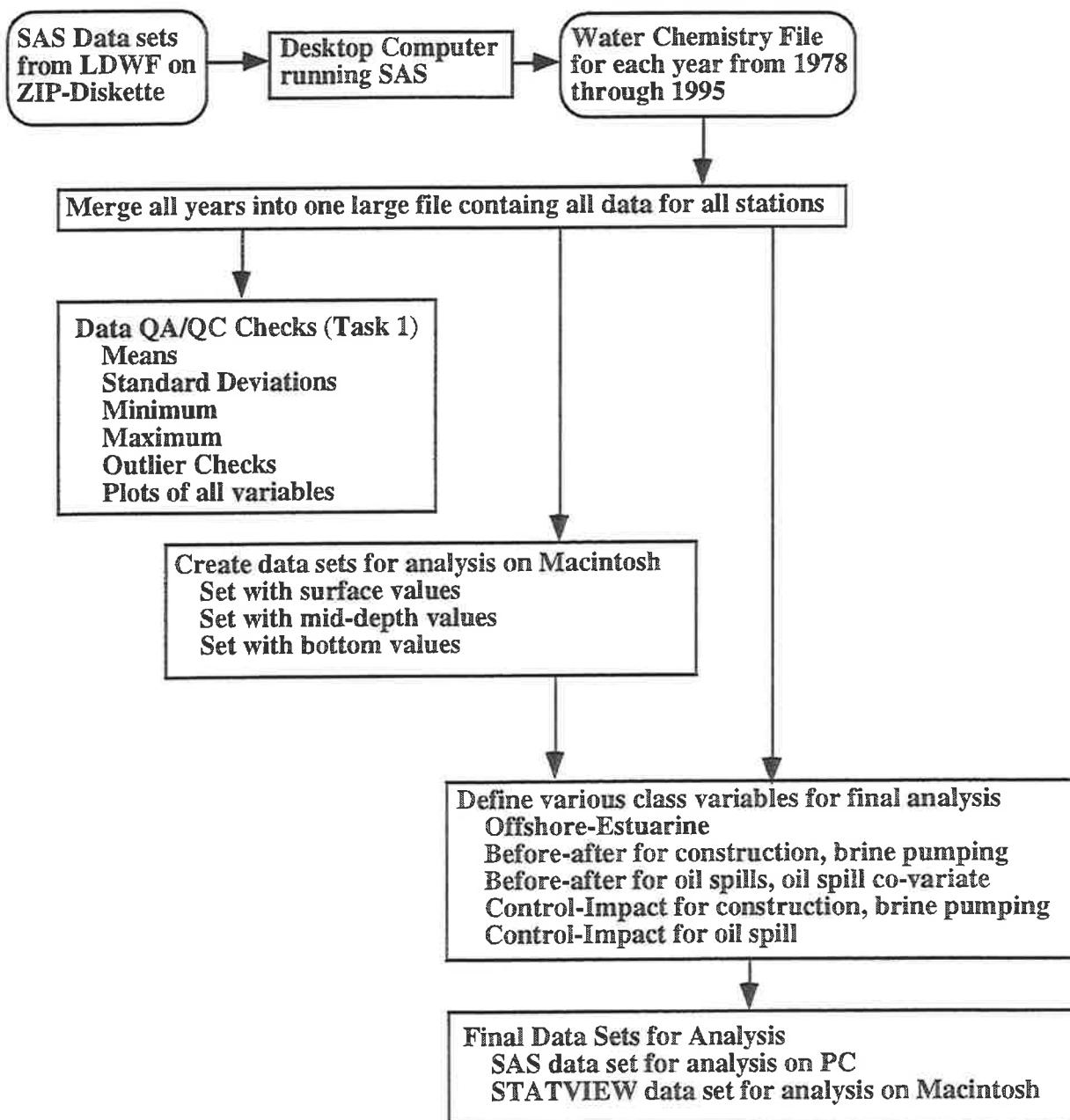


Figure 6. Outline of process used to merge data sets from LDWF into final data set for analysis. During merging the following sets of stations were combined since they had different station numbers but the same locations: Stations 419 and 19 combined and numbered as 19, Stations 422 and 22 combined and numbered as 22, and stations 407 and 7 combined and numbered as 7.

4.2 Data Collection

4.2.1 Field Sampling

All sampling trips followed a standard procedure, in order to ensure uniformity of data collection and to maximize efficiency. The following general sequence was used:

1. Upon arrival at a station, all forward motion of the boat was allowed to stop.

2. Environmental data were collected and recorded on a data sheet.

Air temperature
Wind Speed
Wind Direction
Cloud Cover
Wave Height
Secchi Depth

3. Hydrographic profiles were collected using a Guildline/Rosette sampler multi-bottle array system for the offshore stations and a Hydrolab Surveyor II and Kemmerer sample for the inshore stations.

4. The discrete water chemistry samples were collected. Dissolved Oxygen was collected in a 250 ml glass bottle, salinity was collected in a 250 ml plastic bottle, nutrients were collected in 500 ml plastic bottles, offshore chlorophyll was collected in 1 liter plastic bottle (a total of 4.3 liters were collected) inshore chlorophyll was collected in 1 liter plastic bottle. The samples were secured using the following guidelines:

Dissolved Oxygen: pH adjust on site and store in dark.

Salinity: Cool to 4°C.

Alkalinity: Cool to 4°C.

Calcium: Cool to 4°C.

Sulfate: Cool to 4°C.

Turbidity: Cool to 4°C.

Total Solids: Cool to 4°C.

Nutrients: Cool to 4°C

Chlorophyll: Preserved with MgCO₃, store in dark,
filter as soon as possible.

5. The samples were returned to LDWF for chemical analysis.

4.2.2 Laboratory Analysis

The data were analyzed in the LDWF Chemistry laboratory, using standard methods, as outlined below:

Dissolved Oxygen:	Azide modification of the Winkler Method APHHA (1985), Method 421B
Salinity:	Electrical Conductivity APHHA (1985), Method 210A
Alkalinity:	Potentiometric Titration to pre-selected pH APHHA (1985), Method 403
Calcium:	EDTA Titration method APHHA (1985), Method 311C
Sulfate:	Turbidimetric Method APHHA (1985), Method 426C
Turbidity:	Nephelometric Method APHHA (1985), Method 214A
Total Solids:	Dried at 103-105°C APHHA (1985), Method 209A
Ammonia:	Technicon Industrial Method Method 154-71 W
Nitrate-Nitrite:	Technicon Industrial Method Method 100-70 WB
Phosphate:	Technicon Industrial Method Method 155-71 W
Silica:	Technicon Industrial Method Method 186-72 WB
Total Phosphate:	EPA Ultra micro Semi-automated Method Method
Total Kjeldahl Nitrogen:	EPA Ultra micro Semi-automated Method Method
Chlorophyll:	Spectrophotometric Determination Strickland and Parsons (1972) Method IV.3.I

4.3 Potential Impact Periods

The analyses were performed to evaluate construction, brine discharge, and oil spill impacts. The data were therefore divided into portions that pertained to the appropriate impact: before construction, during construction, after construction, before the storage caverns were excavated, during continuous brine disposal, after continuous brine disposal, and when oil spills occurred.

4.3.1 Construction

Construction of the LOOP pipeline began in early 1979, and construction of the LOCAP pipeline began in early 1980 (Visser, et al, 1996). Completion and backfilling on the LOOP pipeline was completed by mid-1980 and on the LOCAP pipeline later in 1980 (Visser, et al, 1996).

4.3.2 Brine discharge

The nearly continuous offshore discharge of the excavated brine solution ran through a pipeline and a diffuser of 26 equally spaced ports began in January 1980, and lasted until December 1982, when discharge became intermittent, and lasting for several weeks at a time (Figure 7). A new salt cavern was excavated in 1995, not included in this analysis. Observations at the diffuser documented that the maximum vertical height of the brine plume was approximately 5 m off the bottom, and that the thickness was generally 1 to 1.5 m off the bottom. The brine discharge volume and salinity data were used to estimate the potential area that might have been impacted by the brine. The discharge volume was converted to metric units and multiplied by the salt content to obtain the amount of salt (grams) being discharged at the diffuser. It was then assumed that this salt would be mixed into the bottom third of the 10 m deep water column. The resulting salinity increase above ambient was then calculated. The results were expressed as the surface area (square kilometers) that would have a 1 ppt increase above ambient.

The total amount of brine discharge, the brine salinity, and the potential area impacted are also shown in Figure 7. The minimum and maximum values for the individual daily discharge reported during the interval was 1,065 barrels/d (June 6, 1991) and 602,696 barrels/d (March 4, 1988), respectively. The range of values for salinity reported during the interval was 52.8 ppt (May 8, 1980) and 368 ppt (October 10, 1983; Anon 1995).

Seventy-eight percent of the brine discharged offshore through 1995 occurred during 1980-82 when the caverns were being excavated. The average salinity of the brine solutions was 201 ppt. The period from 1983 to 1994 had an annual release rate of 117×10^6 Barrels and an average concentration of 199 ppt.

4.3.3 Oil Spills

The date and amount of oil unintentionally released into the region by LOOP, Inc. activities were recorded by regulatory agencies and provided to us by LOOP, Inc. The total oil spilled from May 1980 through December 1994 was 4,316 barrels of oil, (287 barrels/yr) of which 95% was spilled in offshore waters. This amount spilled is less than 10 percent of the pre-project estimated release of between 3,740 to 5,400 barrels/yr (DOT, USGS 1976). In 1984 the Gulf Coast had 2,306 pollution incidents involving 10,381 barrels of crude oil and in the US as a whole there were 10,745 incidents involving 470,214 barrels (Kennish 1997, p. 107). The average of 287 barrels/yr at the LOOP site is thus equal to 2.7% and 0.6% of the GOM (Gulf of Mexico) and US amount spilled, respectively. Inshore, 87% of the amount released associated with LOOP operations occurred at the Clovelly storage area. Three offshore oil spills occurred on April 9, 14 and 23, 1990, of approximately 833 barrels each. The total for April 1990 was equivalent to 57 % of all oil spilled from 1980 to 1994. The oil spill data are shown in Figure 8.

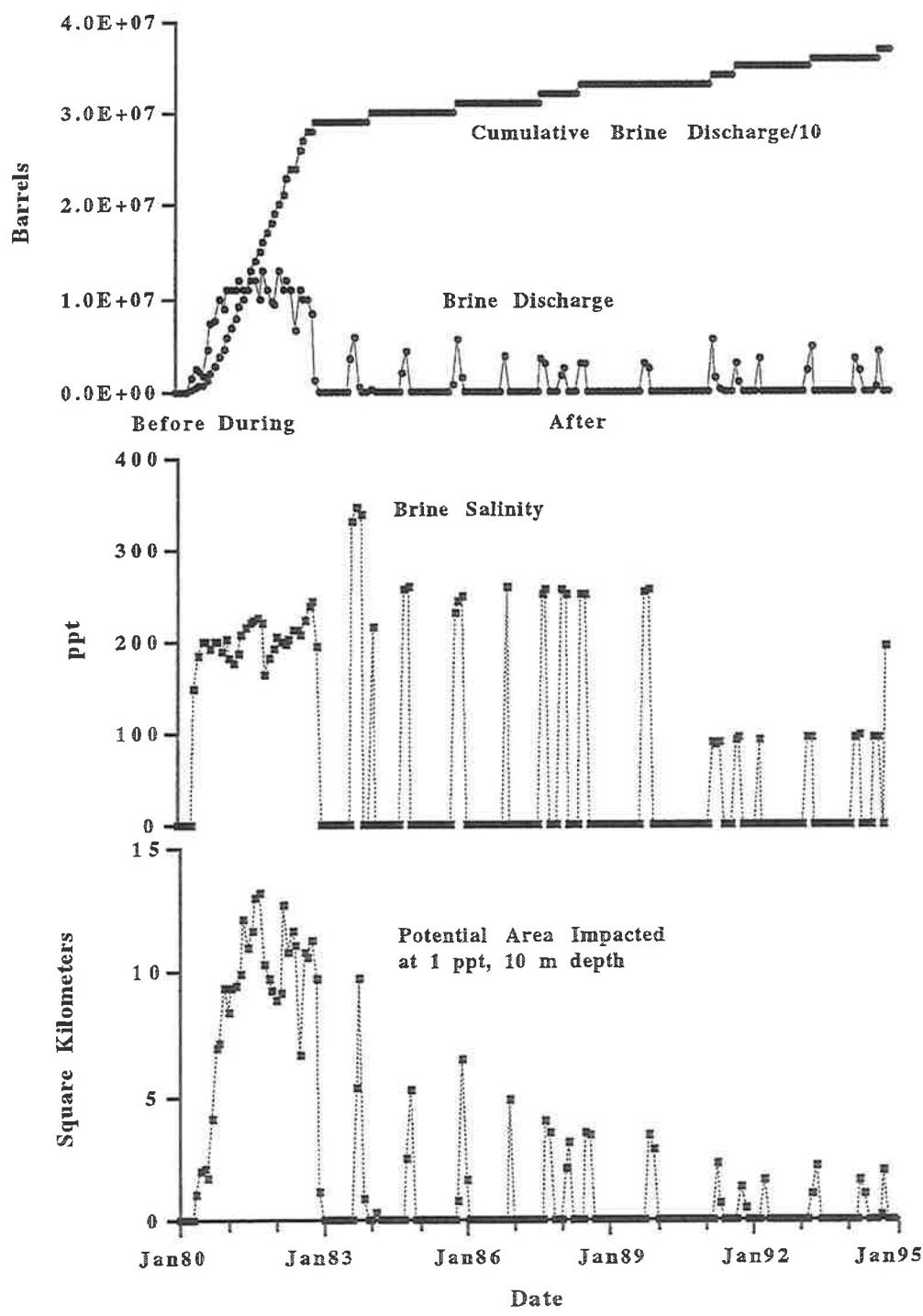


Figure 7. Brine discharge and Salinity (ppt) at the offshore disposal site (monthly and cumulative values). The bar shows the before, during, and after time periods used in the data analysis. The potential area impacted, based on a 1 ppt increase in a 10 m water column is shown in the bottom panel.

LDWF, LOOP Oil Spill Data

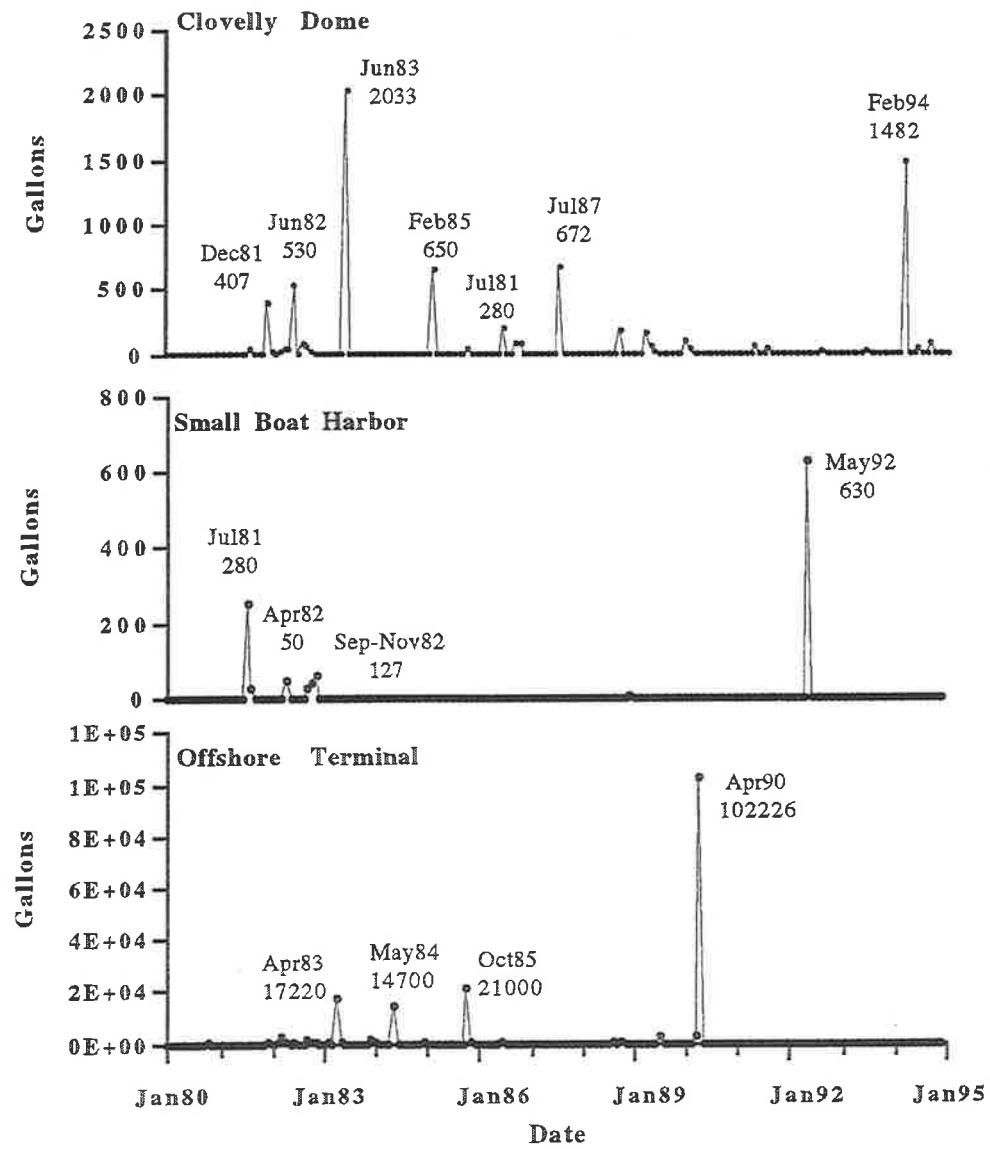


Figure 8. Time series plots of (top to bottom) gallons of oil spilled at the Clovelly Dome oil storage area, the Fourchon small boat harbor, and the offshore terminal,. The dates and amount of oil spilled, for the more noticeable peaks on the plot, are listed.

4.4 Statistical Methods

All of the ANOVA and BACI statistical analyses were conducted using the data stations with the longest records (15 years or older), to cover the entire time of the LOOP Operations. The stations used in the analysis are listed in Table 4. General Descriptive statistics (means, standard deviation, minimum, maximum) were computed for all variables, for all water quality stations. Correlations among sample depths for each variable were also computed. The more detailed statistical analyses are outlined below.

4.4.1 Regression Analysis

Regression analysis among various indicator variables was performed on a desktop computer (Macintosh® or DOS Machine) using commercial software products. Analyses on the Macintosh were accomplished using Statview II® (Abacus Concepts, 1987); analyses on DOS machines were accomplished using PC SAS® (SAS, 1990 a, b, c).

Multiple regression models were used to test for the effect of whether or not this was an impact in April 1990, when the largest oil spills occurred. A fixed variable was used for the month (1=oil spill and 2 = no spill) and two dependent variables in separate equations. One used Chlorophyll_a as the dependent variable, and month (1 or 2), Alkalinity, nitrate+nitrite, salinity and oxygen as the independent variables. A second model had Oxygen as the dependent variable, and month (either 1 or 2), Alkalinity, nitrate+nitrite, and Chlorophyll_a as the independent variables. These were applied to both surface and bottom water offshore stations for the period 1985 to 1995, and for only March through June. The purpose of using this longer data set was to reduce the effect of seasonal or annual trends on the impacts (if any) of the oil spill on oxygen or Chlorophyll_a concentration.

4.4.2 Factor Analysis

All Factor analysis was conducted using the "Statistical Analysis System (SAS)", (SAS, 1990a, b, c). The following discussion of the methods employed is based upon the description of the procedure found in the SAS/STAT Users guide (SAS, 1990 b).

Factor analysis is a statistical technique that can be used to reduce the number of variables analyzed into a number of "factors". These factors or "unobservable, latent" variables are used to explain the correlations or covariances among a set of variables. Generally, the factors are not linear combinations of the original variables, although it is assumed that the original variables are linearly related, but the relation is obscured by the random variation in the

measured variables. In factor analysis, the linear relations and the amount of variation is estimated.

Factor analysis was used to reduce the number of chemistry variables into a series of factors, with each factor being comprised of one or more of the original chemical variables. The analysis was run on surface and bottom data for both the Estuary and the Offshore stations.

4.4.3 Analysis of Variance Modeling (ANOVA)

All ANOVA modeling was conducted using the "Statistical Analysis System (SAS)", (SAS, 1990 a, b, c). The following discussion of the method is based upon the description of the procedure found in the SAS/STAT Users guide (SAS, 1990 b).

An ANOVA, using linear models, calculates the variance components from ratios using the expected mean square error. The general form of the linear model is:

$$Y = XB + e$$

where Y represents the univariate data

B is an unknown vector of fixed effect parameters with a known model matrix X

e is an unknown vector of independent random variables

The standard linear model is used to model the mean of Y using the fixed effects B . The variance of each element of e is assumed to be constant. ANOVA modeling was used to investigate the possible impacts of oil spills.

4.4.4 Before-After, Control-Impact (BACI)

LOOP activities (construction, brine discharge, oil spills) were analyzed for potential impacts on the Water Chemistry data using Before-After, Control-Impact (BACI) modeling with the General Linear Models (GLM) procedure in the "Statistical Analysis System (SAS)", (SAS, 1990 a, b, c). BACI is an ANOVA technique, but differs from the standard linear model discussed above. The "Before" and "After" classes are based upon the timing of the events being studied and the "Control" and "Impact" classes are assigned based upon the distance between a given measurement station and the location where the event being studied occurred. The BACI

model looks at the interaction of the "Before-After" and the "Control-Impact" statistical tests. If there is an effect, this term will be significant. A discussion of BACI analysis can be found in Underwood (1994). In using the model, the data are divided into "Before" and "After" and "Control" and "Impact" classes. The basic model is as follows:

Response Variable = BA YEAR(BA) CI STATION(CI)
BA*CI YEAR*BA*STATION(CI)

Where:

BA denotes Before/After class

YEAR denotes measurement over time

CI denotes Control/Impact class

* denotes an interaction term, a parenthesis denotes nesting

It is possible to have a difference between the Control and Impact stations (the CI term in the model would be significant) without an actual impact due to the event if the differences between stations is always present. Similarly, it is possible to have a difference between the Before and After samples (the BA term in the model would be significant) without an actual impact due to the event if all stations had the same response (i.e., all of the stations increased after the event). In order to show an impact, the BA*CI interaction term must be significant. This means that the Impact stations are responding differently than the Control stations to the impact.

The standard BACI model was run to investigate the possible impact of (1) LOOP Construction, and (2) brine pumping. A modification of the standard BACI model was run to investigate the possible impact of oil spills. In this model the amount of oil spilled is added as a covariate in the model. The modified model is:

Response Variable = BA YEAR(BA) CI STATION(CI) OIL
BA*CI YEAR*BA*STATION(CI)

Where:

OIL denotes amount of oil spilled

(all other terms are the same)

Table 4. List of stations used for statistical analysis. The stations used were those with the longest records. Listed, for each station, is the number of samples per year for the time period from 1978 through 1995. Single and double digit numbers were monthly sampling stations, and three digit numbers were quarterly sampling stations.

Station	Year																	
	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
5	10	12	12	12	12	12	12	21	12	12	12	12	12	12	12	12	12	12
7	9	12	12	12	12	12	12	21	12	12	12	12	12	12	12	12	12	12
12	4	12	12	12	12	12	21	12	12	12	12	0	0	0	12	12	12	12
13	4	12	12	12	12	12	21	12	12	12	12	12	12	12	12	12	5	12
14	8	12	12	12	12	12	21	12	12	12	12	12	12	12	12	12	12	12
15	7	12	12	12	12	12	21	12	12	12	12	12	12	12	12	12	12	12
18	5	12	12	12	12	12	21	12	12	12	12	12	12	12	12	12	12	12
21	5	12	12	12	12	12	21	10	12	12	12	12	12	10	12	12	12	12
22	8	12	12	12	12	12	21	10	12	12	12	12	12	9	12	12	12	12
34	0	10	12	12	12	12	21	12	12	12	12	12	12	12	12	12	12	12
35	0	4	12	12	12	12	21	10	12	12	12	12	12	12	12	12	12	12
36	0	4	12	12	12	12	21	10	12	12	12	12	12	12	12	12	12	12
37	0	0	12	12	12	12	21	12	12	12	12	12	12	12	12	12	12	12
38	0	0	12	12	12	12	21	12	12	12	12	10	12	12	12	12	12	12
52	0	0	3	4	12	12	21	12	12	12	12	12	12	12	12	12	12	12
53	0	0	3	4	12	12	21	12	12	12	12	12	12	12	12	12	12	12
54	0	0	3	4	12	12	21	12	12	12	12	12	12	12	12	12	12	12
435	0	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4
461	0	0	4	4	4	4	4	4	3	4	4	2	0	1	4	3	4	
462	0	2	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	
463	0	2	5	4	4	4	4	4	3	4	4	2	1	1	4	3	4	
464	0	2	4	3	4	4	4	3	4	3	4	4	4	4	4	4	4	3
473	0	0	3	4	4	4	4	4	4	4	4	3	4	1	4	3	6	4
474	0	0	4	4	4	4	4	4	4	4	4	3	4	1	4	3	4	4
475	0	0	5	4	4	4	4	4	3	4	3	1	4	4	3	4	4	
481	0	1	2	3	2	5	4	4	3	4	3	4	1	4	3	4	4	
482	0	1	3	4	2	5	4	4	3	4	3	4	1	4	3	4	4	
484	0	0	1	3	2	5	4	4	2	4	3	5	1	4	3	4	4	

The time periods for the construction were those suggested by LDWF, with pre-construction being before January, 1979; construction covering the time period from January, 1979 through December 1980; and after construction being after December, 1980. The time periods for the brine discharge and the Oil spills was based upon the data documenting these events. Figure 8 presents a plot of the oil spills at Clovelly Dome, the Fourchon small boat harbor, and the offshore terminal as well as the brine discharge. The actual amount of oil spilled was used in the model as a covariate with the before time period corresponding to the time before any oil was spilled and the after time period corresponding to the time after all oil was spilled. In the case of the brine pumping (see Figure 7), the before time period corresponds to times before any pumping started (dates before 01May80), the during corresponds to the time period during which major pumping occurred (01May80 - 01Dec83), and the after corresponds to the time period after major pumping stopped (dates after 01Dec83).

In the case of the construction, stations on or close to the LOOP pipeline route were classified as "Impact" stations and those removed from the pipeline route, but still in the inshore area were classified as "Control" stations. In the case of the brine pumping, the stations very close to the brine diffuser were classified as "Impact" stations and the stations removed from the brine diffuser were classified as "Control" stations. Oil spills were analyzed for the Clovelly Dome and the offshore terminal only. The Fourchon small boat harbor did not have a suitable control station (there is not another Bayou LaFourche station), and the amount of oil spilled was quite small (see Figure 9).

A second model, using a "High" and "Low" impact classification was also employed. In this model stations at the impact site (offshore terminal) were classified as "High" impact stations, stations close by were classified as "Low" impact stations, and stations further away were classified as "Control". The purpose of this model was to determine the extent of an impact, if one existed. The time periods used and the stations used for all analyses are summarized in Table 5 and shown in Figures 10 and 11.

Table 5. Summary of statistical techniques to investigate possible Impacts of LOOP. Listed, for each potential impact type, is the time period over which the impact did (and did not) occur, the LDWF stations used in the analysis, and the type of analysis. The stations are classified as a control, a low impact or a high impact station.

Impact	Before	Time Period During	After	Stations Used			Statistical Tests
				Control	Low Impact	High Impact	
Construction	<Jan79	>Jan79 =<Dec80	>Dec80	5		34	BACI Model
				12		7	
				15		38	
				14			
Brine Discharge	<May80	>May80 =<Dec82	>Dec82	21		22	BACI Model
				35		36	
				502			
Oil Spills							
Cloveley Dome	<Dec81	>=Dec81 =<Feb94	>Feb94	15		38	BACI Model with oil spilled as covariate for chronic spills
				14			
Offshore Terminal 1	<Apr83	>Apr83 =<Apr90	>Apr90	704		53	BACI Model with Oil spilled as covariate for chronic spills
				706		55	
				707		708	
						708	
						52	
						54	
Offshore Terminal 2	<Apr83	>Apr83 =<Apr90	>Apr90	704	52	53	BACI Model with Oil spilled as covariate
				706	54	55	
				707		708	
Offshore Terminal 3	>=Feb90 <Apr90	=Apr90	>Apr90 =<Jun90	704	52	53	ANOVA Model 2 month before 2 months after
				706	54	55	
				707		708	
Offshore Terminal 4	>=Dec89 <Apr90	=Apr90	>Apr90 =<Aug90	704	52	53	ANOVA Model 4 month before 4 months after
				706	54	55	
				707		708	

LDWF-LOOP: Water Chemistry Stations for BACI Analysis

Circle = Construction, Square = Brine Discharge

Filled = Control, Open = Impact

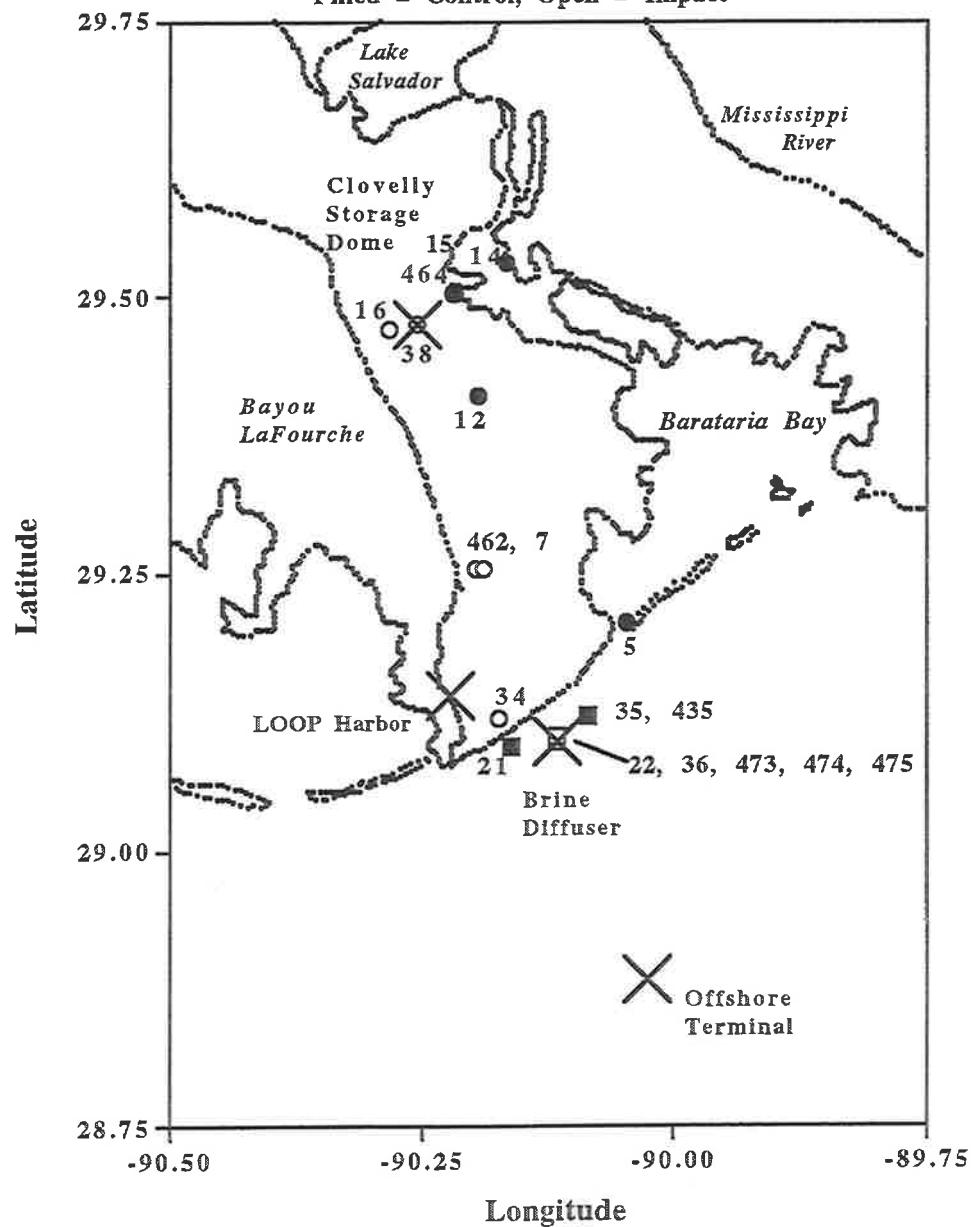


Figure 9. LDWF LOOP Water quality stations used in the BACI analysis for LOOP construction (circles) and brine discharge (squares). Filled symbols correspond to control stations and open symbols correspond to impact stations.

LDWF-LOOP: Water Chemistry Stations for BACI Analysis

Circle = Clovelly Oil Spills, Square = Offshore Oil Spills
 Filled = Control, Open = Impact

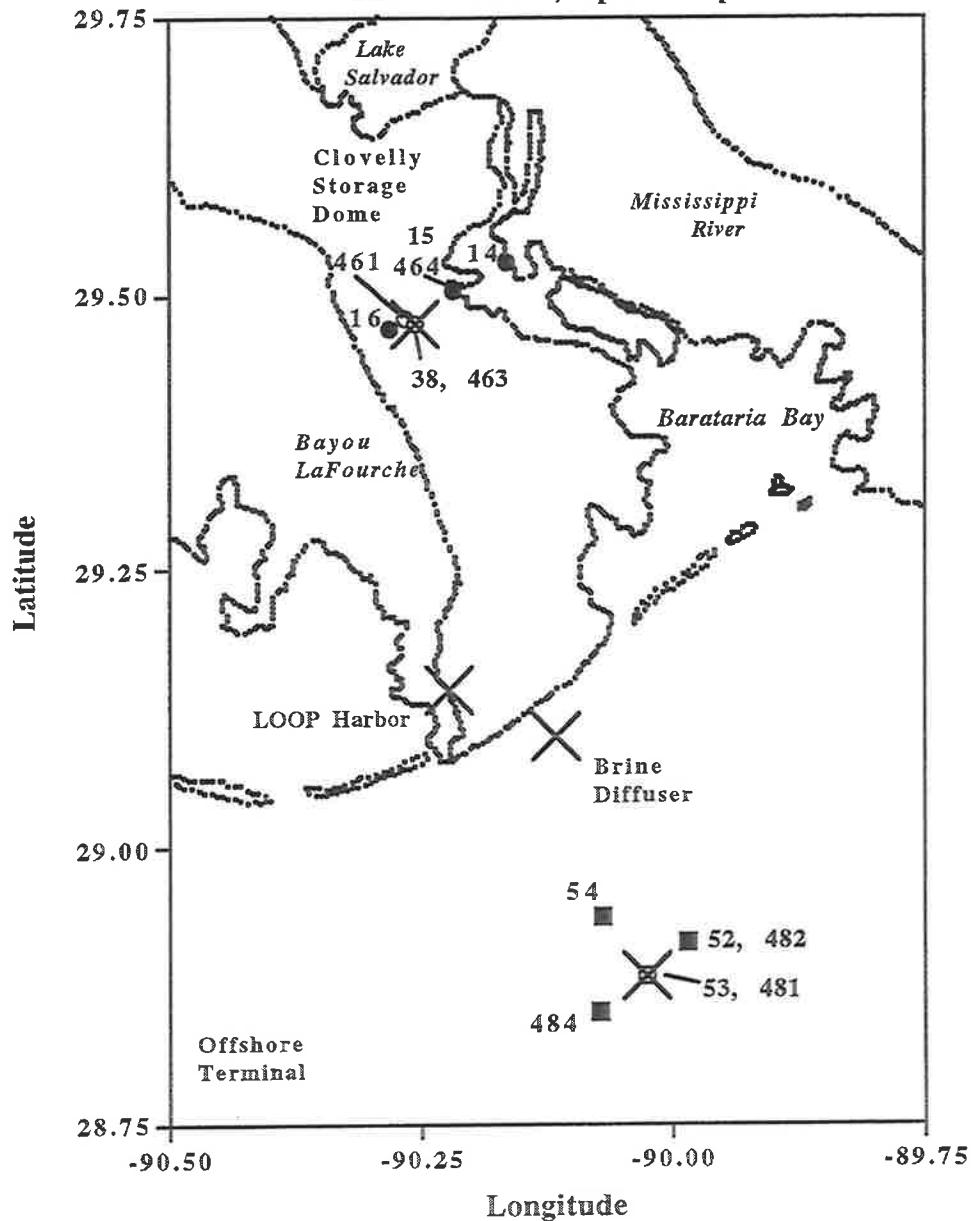


Figure 10. LDWF LOOP Water quality stations used in the BACI analysis for Clovelly Dome oil spills (circles) and offshore oil spills (squares). Filled symbols correspond to control stations and open symbols correspond to impact stations.

5.0 Results and Discussion

5.1 Descriptive Statistics

The means, standard deviation, minimum and maximum values for all water chemistry stations for all water chemistry variables are listed in Appendix C. Table 6 summaries the means for surface and bottom and for inshore and offshore stations for both the monthly and the quarterly data. These data indicate that the variability is quite high for all of the water chemistry variables. Both the monthly and the quarterly sampling give similar estimates of the mean values.

5.2 Correlation Analysis

The results of the correlation between surface and bottom water chemistry variables is presented in Table 7. The results indicate that the surface and bottom values are well correlated, for all variables, at the estuarine stations. The offshore stations exhibit weak correlations between surface and bottom for all variables except for Sulfate, TKN, and TP.

5.3 Factor Analysis

The results of the factor analysis indicated that the variance in the data can be explained by four or five factors in all cases (Table 8). The factors explain about 73% of the total variance for the estuarine stations and 60-65% of the total variance in the offshore stations. In all cases, the first (and most important factor) was a salinity grouping which explained 20-36% of the variation in all cases. The remaining factors were generally comprised of a "turbidity" (Turbidity, TSS, SS, TDS) factor, a "nutrient" factor (TKN, TP), an "Oxygen" factor, and a "Chlorophyll" factor.

Table 6. Summary statistics of all LDWF, LOOP water chemistry variables. The mean and standard deviation (SD) are listed for inshore and offshore environments based upon monthly and quarterly sampling.

Variable	Inshore				Offshore			
	Monthly Mean	SD	Quarterly Mean	SD	Monthly Mean	SD	Quarterly Mean	SD
Surface Alkalinity	94.5	24.1	82.5	16.7	112.5	11.3	110.7	10.3
Surface Ammonia	4.3	6.2	3.5	4.0	1.9	2.7	1.4	1.4
Surface Calcium	154.8	112.7	76.3	64.9	306.2	72.8	301.0	60.8
Surface Chlorophyll-a	15.5	13.1	24.8	25.2	6.9	10.4	7.6	10.2
Surface Nitrate-Nitrite	7.8	16.9	3.2	8.1	7.7	12.0	9.5	14.0
Surface Oxygen	7.4	2.0	7.3	2.0	8.3	2.1	9.0	1.6
Surface Phosphate	1.2	1.6	1.6	1.9	0.5	0.8	0.4	0.5
Surface Salinity	11.4	10.0	4.6	5.9	26.2	5.2	25.4	5.7
Surface Silica	1.8	1.8	1.8	1.0	0.5	0.9	0.5	0.5
Surface Sulfate	701.4	732.0	349.5	424.8	1744.1	678.2	1674	688
Surface Suspended Solids	49.3	58.6	64.1	80.9	28.5	38.9	25.2	29.3
Surface Total Dissolved Solids	12912.	11444	5891	7787	29642	6747	28630	6549
Surface Total Kjeldahl Nitrogen	85.5	63.2	144.7	90.4	44.8	37.5	43.0	33.5
Surface Total Phosphorus	5.2	4.1	8.2	3.1	2.9	3.1	3.3	6.9
Surface TS	12986	11454	5956	7773	29675	6743	28646	6562
Surface Turbidity	33.4	36.5	38.7	43.1	5.6	7.8	6.4	12.2
Bottom Alkalinity	98.8	20.8	97.1	21.2	117.6	8.9	117.2	16.6
Bottom Ammonia	4.5	5.9	4.5	8.0	3.9	6.3	3.5	4.6
Bottom Calcium	178.6	127.7	110.2	87.2	366.1	67.8	379.3	100.1
Bottom Chlorophyll-a	11.3	8.5	18.9	11.4	2.7	3.6	2.5	3.7
Bottom Nitrate-Nitrite	9.1	16.2	4.61	10.1	6.0	6.4	5.9	6.1
Bottom Oxygen	6.9	2.0	7.32	2.5	5.1	2.6	5.0	2.6
Bottom Phosphate	1.3	1.3	1.41	1.8	1.0	1.5	4.0	6.3
Bottom Salinity	13.8	11.4	7.1	7.5	32.4	3.8	33.0	3.9
Bottom Silica	1.6	1.6	1.8	1.0	0.6	0.8	0.6	0.6
Bottom Sulfate	898.2	830.0	441.7	526.0	2180.6	700.6	2142	700
Bottom Suspended Solids	71.3	83.7	55.7	61.1	39.7	48.0	37.3	35.9
Bottom Total Dissolved Solids	15637	13122	8242	8630	36644	5892	37137	5448
Bottom Total Kjeldahl Nitrogen	84.2	60.0	94.9	60.0	42.5	39.4	38.6	28.0
Bottom Total Phosphorus	6.0	4.6	6.6	5.0	3.8	4.1	4.0	6.3
Bottom Total Solids	15737	13107	8285	8612	36946	11427	37161	1714
Bottom Turbidity	38.8	41.6	33.6	34.8	11.2	14.0	9.8	12.1

Table 7. Correlation of surface and bottom variables for the LDWF-LOOP long term monitoring stations. Indicated for each variable is the Pearson Correlation Coefficient and the number of samples. The data are presented for both the estuarine and the offshore stations. All correlations were statistically significant at the 0.005 level.

<u>Variable</u>	<u>Inshore Stations</u>		<u>Offshore Stations</u>	
	<u>Corr. Coeff.</u>	<u>Number of Samples</u>	<u>Corr. Coeff.</u>	<u>Number of Samples</u>
Alkalinity	0.897	741	0.439	1231
Ammonia	0.895	742	0.416	1229
Calcium	0.968	746	0.550	1239
Chlorophyll-a	0.703	190	0.411	1121
NO ₃ +NO ₂	0.989	739	0.456	1231
Oxygen	0.864	733	0.433	1212
Phosphate	0.840	741	0.319	1223
Salinity	0.993	731	0.318	1209
Silica	0.970	741	0.652	1238
SS	0.723	738	0.590	1229
Sulfate	0.969	736	0.817	1230
TDS	0.979	738	0.372	1228
TKN	0.908	730	0.878	1205
TS	0.978	741	0.150	1238
Turbidity	0.868	715	0.423	1173
TP	0.883	734	0.722	1224

Table 8. Results of a Factor Analysis of the LOOP water chemistry data. The percentage of the variance (individual and cumulative) explained by each factor as well as the factor pattern (variables, correlations) for each factor is listed. Results are given for surface and bottom for both inshore and offshore stations. Only the long-term stations were used in this analysis (Table 1).

<u>Data Used</u>	<u>Factor</u>	<u>Variance Explained</u>		<u>Variables in factor | correlation</u>							
		<u>Individual</u>	<u>Cumulative</u>	Salinity	0.96	TDS	0.95	Calcium	0.93	Sulfate	0.87
Inshore Surface	1	33.1	33.1	Alkalinity	0.81						
	2	13.9	47.0	Turbidity	0.86	SS	0.68	Phosphate	0.66	Silica	0.64
	3	9.8	56.8	TKN	0.84	TP	0.73				
	4	9.2	66.0	Chlorophyll	0.80	Ammonia	-0.62				
	5	7.1	73.2	Oxygen	0.85						
Inshore, Bottom	1	36.7	36.7	Salinity	0.95	TDS	0.91	Alkalinity	0.80	Calcium	0.77
	2	10.4	47.2	SS	0.83	Turbidity	0.80				
	3	9.6	56.7	TKN	0.86	TP	0.64				
	4	8.3	65.0	Oxygen	0.77						
	5	8.0	73.0	Ammonia	0.76						
Offshore, Surface	1	25.6	25.6	Salinity	0.92	TDS	0.86	Sulfate	0.65		
	2	13.9	39.5	Turbidity	0.64	Ammonia	0.62				
	3	9.8	49.3	TP	-0.84	TKN	0.80				
	4	7.2	56.6	Chlorophyll	0.80	Oxygen	0.77				
Offshore, Bottom	1	21.9	21.9	Salinity	0.88	TDS	0.77	Calcium	0.68		
	2	19.2	41.1	Silica	0.85	Phosphate	0.76	Ammonia	0.72	Oxygen	
	3	9.5	50.6	TKN	0.84	TP	0.79				
	4	8.6	59.2	SS	0.88	Turbidity	0.79				
	5	6.7	65.9	NO ₃ -NO ₂	0.90						

5.4 Spatial and Temporal Patterns

Times series plots of all of the surface water chemistry variable for a selected set of stations are presented in Appendix D, and the long term trend analysis results are presented in Appendix E.

5.4.1 Spatial Patterns

The general spatial patterns can be summarized as follows. Salinity shows an increase (from ~5 ppt to ~30 ppt) as one moves from the upper Barataria System to the offshore terminal. Most of the nutrients (Ammonia, Phosphate, Silica, TKN, and TP) show a similar pattern of decreasing values from the upper part of the Barataria system to the offshore terminal. The exception is Nitrate-Nitrite which is lowest in the mid-portion of the Barataria system and higher in the upper portion of the Barataria system and at the offshore stations. Turbidity and suspended solids have a similar pattern to the nutrients, in that they decrease from the upper portion of the Barataria system to the offshore terminal. In addition, these variables also exhibit reduced variability in the offshore stations. Total Dissolved Solids and Total Solids follow the same general pattern as Salinity, since they are highly correlated with salinity (the salt is a major component of the solids). Sulfate and Calcium both show increases in magnitude as well as variability from the upper part of the Barataria system to the offshore terminal. Alkalinity has the same value (~100 mg/l) throughout the whole system, however the offshore stations show reduced variability. Chlorophyll_a also shows a decrease from upper Barataria to the offshore platform. Oxygen exhibits a pronounced seasonal variation in the upper portion of the Barataria system, however this seasonal pattern is much less pronounced at the offshore stations.

The average oxygen concentration in offshore bottom and surface waters for the entire study area, and for summer months at 2 water depths is in Figures 12 and 13. The oxygen concentration is the average of May, June and July for 2 clusters (long-term stations <10 m and >10 m water depth). The variability along a North-to-South transect is in Figure 12. There is a general decrease in oxygen concentration over the last 16 years, and for the shelf (Rabalais et al., 1996). The brine diffuser began operations during a period of decreasing oxygen in the general area, but that change should not be attributable to the LOOP facility operations. The salinity, dissolved inorganic nitrogen and Chlorophyll_a concentrations varied tremendously from year to year (Figure 13). These changes are observed over the whole shelf and are part of a regional phenomena attributable to changes in the Mississippi River water quality.

5.4.2 Temporal Patterns

The long term (temporal) trends were computed for all variables using the long-term (monthly and quarterly) stations listed in Table 4, and plotted in Figures 5 and 6. The mean inshore and offshore trends (slopes) for both surface and bottom values were calculated. The mean trends for each area (inshore, offshore) were calculated using only the individual station trends (Appendix E) that were significant at the 0.05 level. In general, only about a third of the water chemistry variables (there are a total of 16) showed statistically significant and consistent trends.

The monthly surface water chemistry variables which showed statistically significant trends at a majority (>60%) of the stations for either inshore or offshore were:

Silica	negative (-0.15 mg l ⁻¹ y ⁻¹) negative (-4.07 mg l ⁻¹ y ⁻¹)	all inshore stations 57% offshore stations
Sulfate	negative (-186.5 mg l ⁻¹ y ⁻¹) negative (-91.6 mg l ⁻¹ y ⁻¹)	64% inshore stations all offshore stations
Suspended Solids	negative (-4.07 mg l ⁻¹ y ⁻¹) negative (-2.27 mg l ⁻¹ y ⁻¹)	82% inshore stations all offshore stations
Total Kjeldahl Nitrogen	positive (8.14 µg-at l ⁻¹ y ⁻¹) positive (5.00 µg-at l ⁻¹ y ⁻¹)	all inshore stations all offshore stations
Total Phosphorus (TP)	positive (0.03 µg-at l ⁻¹ y ⁻¹) positive (0.33 µg-at l ⁻¹ y ⁻¹)	91% inshore stations all offshore stations
Turbidity	negative (-4.21 NTU y ⁻¹) negative (-0.69 NTU y ⁻¹)	all inshore stations all offshore stations

The quarterly surface water chemistry variables which showed statistically significant trends at a majority (>75%) of the stations for either inshore or offshore were:

Phosphate	negative (-0.34 µg-at l ⁻¹ y ⁻¹)	75% inshore stations, 3% offshore stations
Sulfate	negative (-229.8 mg l ⁻¹ y ⁻¹)	all offshore stations, no inshore stations
Suspended Solids	negative (-2.62 mg l ⁻¹ y ⁻¹)	all offshore stations no inshore stations

Total Kjeldahl Nitrogen	positive ($3.61 \mu\text{g-at l}^{-1} \text{y}^{-1}$) positive ($12.54 \mu\text{g-at l}^{-1} \text{y}^{-1}$)	all offshore stations 50% inshore stations
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The monthly bottom water chemistry variables which showed statistically significant trends at a majority (>70%) of the stations for either inshore or offshore were:

Alkalinity	positive ($0.39 \text{ mg l}^{-1} \text{y}^{-1}$) negative ($0.94 \text{ mg l}^{-1} \text{y}^{-1}$)	71% offshore stations 20% inshore stations
Nitrate-Nitrite	positive ($0.38 \mu\text{g-at l}^{-1} \text{y}^{-1}$) negative ($0.22 \mu\text{g-at l}^{-1} \text{y}^{-1}$)	100% offshore stations 40% inshore stations
Oxygen	negative ($-0.13 \text{ mg l}^{-1} \text{y}^{-1}$) negative ($-0.06 \text{ mg l}^{-1} \text{y}^{-1}$)	all offshore stations 40% inshore stations
Sulfate	negative ($-36.7 \text{ mg l}^{-1} \text{y}^{-1}$) negative ($-38.4 \text{ mg l}^{-1} \text{y}^{-1}$)	60% offshore stations all inshore stations
Total Kjeldahl Nitrogen	positive ($6.24 \mu\text{g-at l}^{-1} \text{y}^{-1}$) positive ($5.04 \mu\text{g-at l}^{-1} \text{y}^{-1}$)	all inshore stations all offshore stations
Total Phosphorus	positive ($0.31 \mu\text{g-at l}^{-1} \text{y}^{-1}$) positive trend ($0.42 \mu\text{g-at l}^{-1} \text{y}^{-1}$)	all inshore stations all offshore stations

The quarterly bottom water chemistry variables which showed statistically significant trends at a majority (>70%) of the stations for either inshore or offshore were:

Silica	negative ($0.17 \mu\text{g-at l}^{-1} \text{y}^{-1}$)	75% inshore stations no offshore stations
Sulfate	negative ($-32.2 \text{ mg l}^{-1} \text{y}^{-1}$) negative ($-210.6 \text{ mg l}^{-1} \text{y}^{-1}$)	25% inshore stations 86% offshore stations
Total Kjeldahl Nitrogen	positive ($5.87 \mu\text{g-at l}^{-1} \text{y}^{-1}$)	all inshore stations no offshore stations

The only variables which showed consistent spatial and temporal trends were Total Kjeldahl Nitrogen, Total Phosphorus, and Sulfate. These three variables exhibited trends at surface and bottom in both the inshore and offshore environment. A total of 20 statistically significant trends were detected in the monthly data. The quarterly data only detected 7 statistically significant trends. This suggests that quarterly sampling is not sufficient to detect long-term trends.

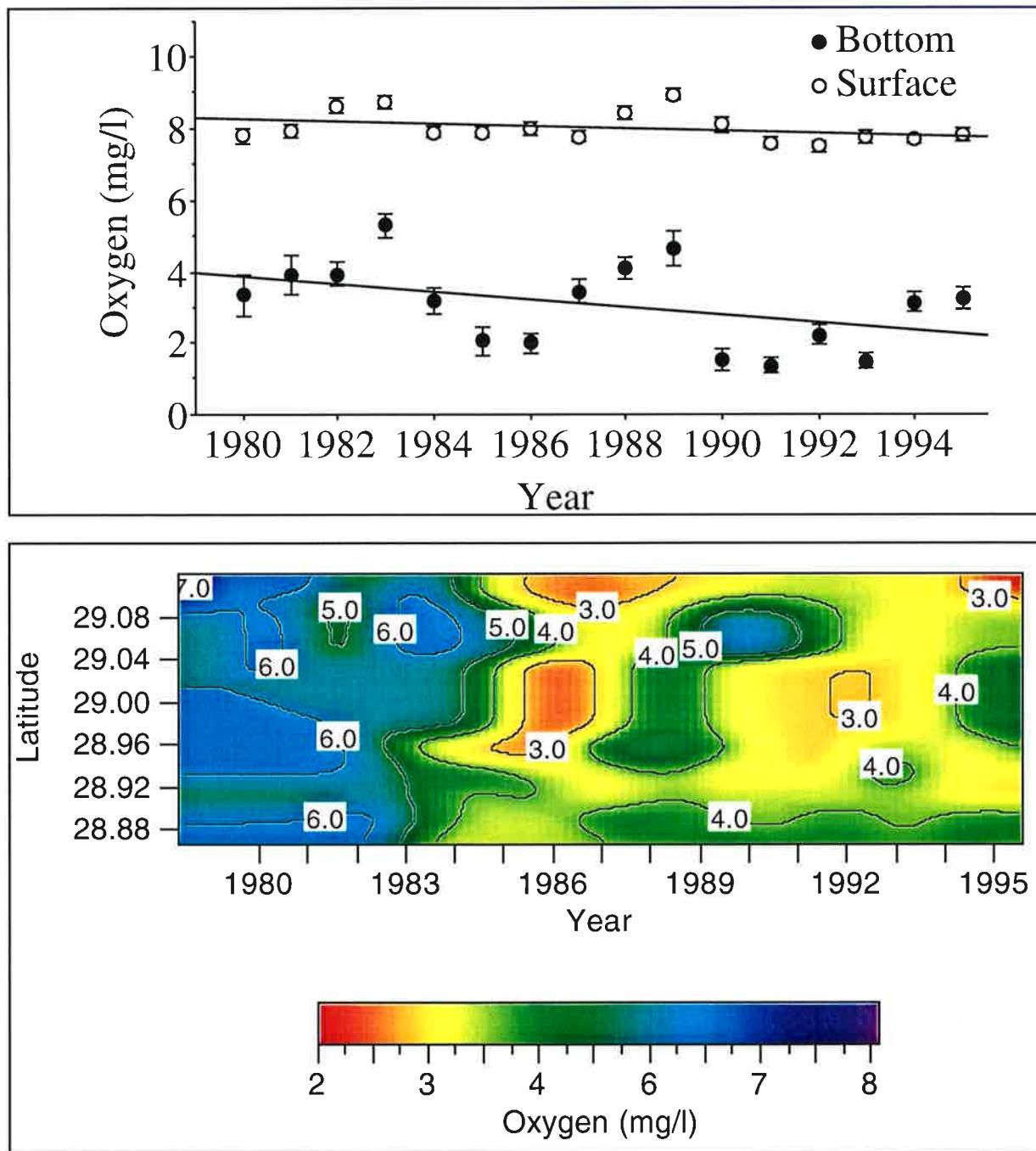


Figure 11. Top: The annual average monthly oxygen concentration offshore in surface and bottom waters (± 1 Std. Error) for records >10 years. The linear regression of the data is not statistically significant for either data set ($p = 0.19$ and 0.09 , for top and bottom waters, respectively). Bottom: Oxygen concentration along a north to south transect offshore. A 3 month running average was used to smooth the data. The brine diffuser is at 29.100° N and the LOOP offshore onloading port is at 28.8850° N.

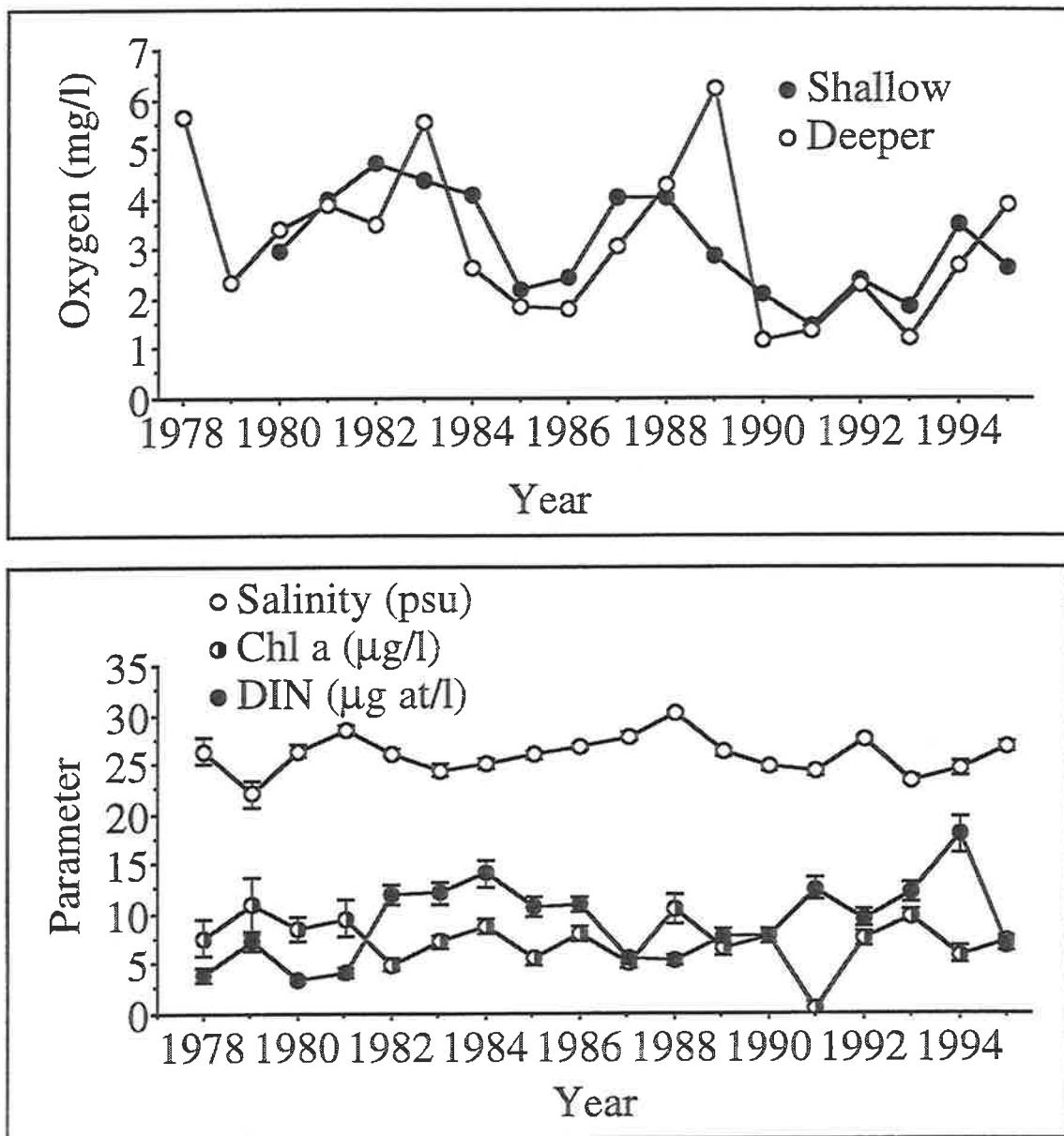


Figure 12. Top: The oxygen concentration during summer months for shallow and deep stations. Bottom: The annual dissolved inorganic nitrogen, Chlorophyll_a, and salinity for offshore monitoring stations. The mean ± 1 Std. Error is plotted.

5.5.4 Offshore Terminal Oil Spills

There was a statistically significant difference before and after in surface Turbidity, and a statistically significant difference between control and impact stations for bottom Turbidity. However, the Before-After, Control-Impact interaction was not significant indicating that these differences were not correlated with the brine discharge for the variables analyzed. Offshore Ammonia did have a statistically significant impact that was correlated with oil spills. The surface Ammonia decreased from 1.87 ug-at/l (before) to 1.13 ug-at/l (after) for the control classes, and decreased from 1.41 ug-at/l (before) to 1.10 ug-at/l (after) for the impact classes. These changes are statistically significant but not ecologically significant.

5.6 Analysis of Brine Discharge

The Louisiana Department of Wildlife and Fisheries studied 32 brine plumes in bottom waters using a benthic sled equipped with dissolved oxygen, temperature and conductivity sensors (Anon 1995). Equipment failure and poor weather conditions prevented completion of some data collections. Contouring of the data were done to estimate the area of bottom waters in 1 ppt increments above the background levels. Ten cruises had sufficient data to map the brine plume (in the horizontal plain) around the diffuser to within 1 ppt of the background levels. These results were used to plot the size of the plume vs. the discharge volume (Figure 13). The result was the observation that there is an increase in plume size with brine discharge amounts. The intercept at zero discharge was not statistically different from zero. The range of values extended up to around 400 ha for the largest plume studied. The average discharge for the 1983-1994 brine discharge operations was 310,547 barrels/day and 200 ppt, which compares to the average of all of the LDWF data set ($n=10$) of 234,315 barrels/day and 204 ppt, respectively. At these average brine discharge rates, the average plume size (within 1 ppt of background) would be 165 ha (1.65 km^2). We can compare the average observed plume size (1 ppt above background) shown in Figure 13 with the area impacted estimated in Figure 7. The potential area impacted of all brine disposal periods estimated in Figure 7 was 1 to 13 km^2 , and the average was 2.0 km^2 .

Table 9. Results of Before:After, Control:Impact (BACI) analyses of LOOP surface water chemistry data. Listed, for each BACI model, and selected variables, is the F value and the probability for (1) the Before:After, (2) the Control:Impact, and (3) the interaction of the Before:After and Control:Impact portions of the model. In the case of the oil spills, the F value and the probability is also given for the oil spill covariate used in the model. Details of the parameters used in the BACI model are listed in Table 1. The symbol 'nd' indicates that there were not enough data points to run the model, and the symbol 'na' indicates the model term was not applicable. Bold face indicates a result significant at the 0.05 level.

Variable	Type of Impact	Before:After		Control:Impact		Interaction		Oil Spill Covariate	
		F	P>F	F	P>F	F	P>F	F	P>F
Ammonia	Construction	0.082	0.922	2.024	0.169	0.180	0.836	.na	.na
Ammonia	Brine	6.340	0.005	0.321	0.577	0.028	0.973	.na	.na
Ammonia	Clovelly Oil	0.549	0.583	1.926	0.186	1.782	0.170	4.199	0.041
Ammonia	Offshore Oil	1.0031	0.386	1.451	0.279	0.329	0.720	4.216	0.040
Chlorophyll-a	Construction	1.406	0.267	0.079	0.782	1.994	0.137	.na	.na
Chlorophyll-a	Brine	2.978	0.065	0.029	0.864	0.215	0.806	.na	.na
Chlorophyll-a	Clovelly Oil	2.966	0.074	13.852	0.006	1.684	0.188	2.630	0.105
Chlorophyll-a	Offshore Oil	0.145	0.866	0.054	0.823	0.306	0.737	0.538	0.464
Salinity	Construction	0.647	0.537	0.344	0.573	0.576	0.563	.na	.na
Salinity	Brine	0.936	0.411	0.498	0.488	0.002	0.998	.na	.na
Salinity	Clovelly Oil	1.176	0.329	0.002	0.963	0.512	0.599	0.763	0.383
Salinity	Offshore Oil	1.826	0.191	0.068	0.800	0.540	0.583	3.684	0.056
Sulfate	Construction	2.273	0.136	0.188	0.676	1.869	0.158	.na	.na
Sulfate	Brine	6.569	0.008	0.009	0.925	0.113	0.893	.na	.na
Sulfate	Clovelly Oil	1.138	0.340	0.188	0.667	0.511	0.600	3.083	0.080
Sulfate	Offshore Oil	2.143	0.151	0.003	0.973	0.154	0.857	2.146	0.144
TKN	Construction	2.753	0.096	0.083	0.777	0.133	0.876	.na	.na
TKN	Brine	5.284	0.000	0.831	0.367	0.338	0.714	.na	.na
TKN	Clovelly Oil	10.003	0.001	0.238	0.634	0.115	0.892	0.938	0.322
TKN	Offshore Oil	13.739	0.000	0.449	0.520	0.090	0.914	0.113	0.737
Turbidity	Construction	1.689	0.215	0.126	0.736	0.146	0.703	.na	.na
Turbidity	Brine	14.509	0.000	0.091	0.765	1.024	0.361	.na	.na
Turbidity	Clovelly Oil	9.842	0.001	0.106	0.753	2.084	0.126	4.332	0.038
Turbidity	Offshore Oil	8.194	0.003	0.077	0.793	0.131	0.877	0.012	0.913

Table 10. Results of Before:After, Control:Impact (BACI) analyses of LOOP bottom water chemistry data. Listed, for each BACI model and selected variables, is the F value and the probability for (1) the Before:After, (2) the Control:Impact, and (3) the interaction of the Before:After and Control:Impact portions of the model. In the case of the oil spills, the F value and the probability is also given for the oil spill covariate used in the model. Details of the parameters used in the BACI model are listed in Table 1. The symbol 'nd' indicates that there were not enough data points to run the model, and the symbol 'na' indicates the model term was not applicable. Bold face indicates a result significant at the 0.05 level.

Variable	Type of Impact	Before:After		Control:Impact		Interaction		Oil Spill Covariate	
		F	P>F	F	P>F	F	P>F	F	P>F
Ammonia	Construction	0.082	0.922	2.024	0.169	0.180	0.836	.na	.na
Ammonia	Brine	0.185	0.833	0.713	0.399	0.716	0.489	.na	.na
Ammonia	Clovelly Oil	1.092	0.357	0.021	0.889	0.567	0.570	0.240	0.625
Ammonia	Offshore Oil	1.447	0.259	0.475	0.524	1.621	0.201	0.314	0.576
Chlorophyll-a	Construction	.nd	.nd	.nd	.nd	.nd	.nd	.na	.na
Chlorophyll-a	Brine	1.172	0.298	0.013	0.909	0.144	0.705	.na	.na
Chlorophyll-a	Clovelly Oil	.nd	.nd	.nd	.nd	.nd	.nd	.na	.na
Chlorophyll-a	Offshore Oil	2.545	0.108	1.398	0.248	0.538	0.585	0.110	0.740
Salinity	Construction	1.162	0.328	0.002	0.968	0.033	0.856	.na	.na
Salinity	Brine	0.589	0.565	1.840	0.195	0.701	0.497	.na	.na
Salinity	Clovelly Oil	1.406	0.272	3.582	0.123	0.517	0.597	0.471	0.493
Salinity	Offshore Oil	0.000	0.999	0.366	0.570	0.263	0.769	0.317	0.574
Sulfate	Construction	3.119	0.062	0.014	0.911	0.077	0.782	.na	.na
Sulfate	Brine	9.390	0.002	0.019	0.892	1.184	0.307	.na	.na
Sulfate	Clovelly Oil	0.907	0.422	0.831	0.406	0.378	0.687	1.824	0.178
Sulfate	Offshore Oil	4.992	0.020	3.174	0.118	0.521	0.595	0.392	0.531
TKN	Construction	1.689	0.215	0.126	0.736	0.146	0.703	.na	.na
TKN	Brine	5.325	0.017	0.544	0.466	0.415	0.661	.na	.na
TKN	Clovelly Oil	7.911	0.004	0.065	0.806	0.724	0.488	0.122	0.723
TKN	Offshore Oil	24.165	0.000	0.125	0.730	0.572	0.565	0.062	0.803
Turbidity	Construction	0.778	0.476	0.261	0.612	0.633	0.428	.na	.na
Turbidity	Brine	16.211	0.000	0.415	0.526	1.018	0.362	.na	.na
Turbidity	Clovelly Oil	12.618	0.000	1.763	0.257	3.917	0.024	0.646	0.422
Turbidity	Offshore Oil	1.686	0.198	5.161	0.026	0.143	0.867	0.131	0.718

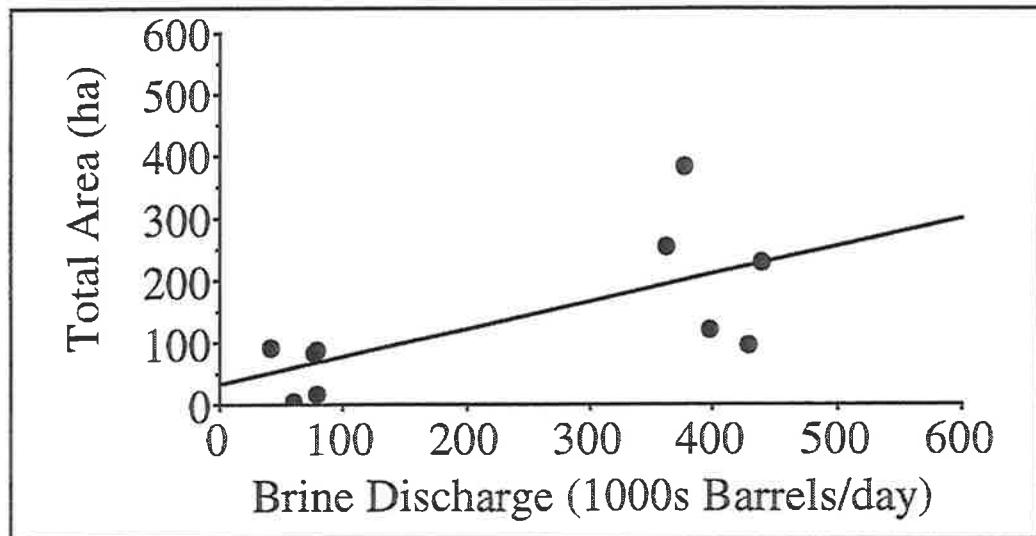


Figure 13. The size of the brine plume on the bottom layer vs. the brine discharge amount. The data are from a draft Louisiana Department of Wildlife and Fisheries (LDWF) report (Anon 1995) which mapped the area with a benthic sled. Only data with closed salinity contours within 1 ppt of ambient salinities were used.

This number must be reduced by the amount of mixing occurring in the area, which can be estimated from the current speeds. An average bottom water current speed for the area is around 10 cm/sec (Anon 1995). Therefore, the water turnover rate is every 27 hours, and the area impacted by the 1 ppt increase is 1.79 km^2 on an average day. This average size compares well with the observed brine plume size (at 1 ppt or higher) of 1.65 km^2 .

The relationship between the area of the plume at +1 ppt and higher salinities is shown in Figure 14. The area of the plume at each increment above +1 ppt was divided by the area of the plume for +1 ppt to normalize the data for comparison from one cruise to another. The average area of the plume at +2 ppt and +10 ppt is about 60 and 20 percent, respectively, of the area at +1 ppt. The LDWF contours of the salinity zone (Anon 1995) showed a general maximum 2000 m extension of the plume in any direction over the sampling events (for the plume of +1 ppt above background), equivalent to a brine plume 'shadow' of 16 km^2 .

The average brine plume is thus theoretically large enough (50 to 400 ha) to be measured at the 4 monitoring stations located within 150 m of the brine diffuser (Stations 473, 474, 475 and 476). The bottom current direction and long axis of the brine plume during these studies ran parallel to the coast in a generally east and west direction (Figure 15). However, the westward bottom currents are centered at 270° , and the eastward currents are offset to the Northeast (45°),

rather than at 90° (Figure 15). An examination of the plotted data (Anon 1995) shows that many times the monitoring stations were located out of the brine plume. The monitoring station most likely to detect changes among the four closest to the brine diffuser is the West station (#475).

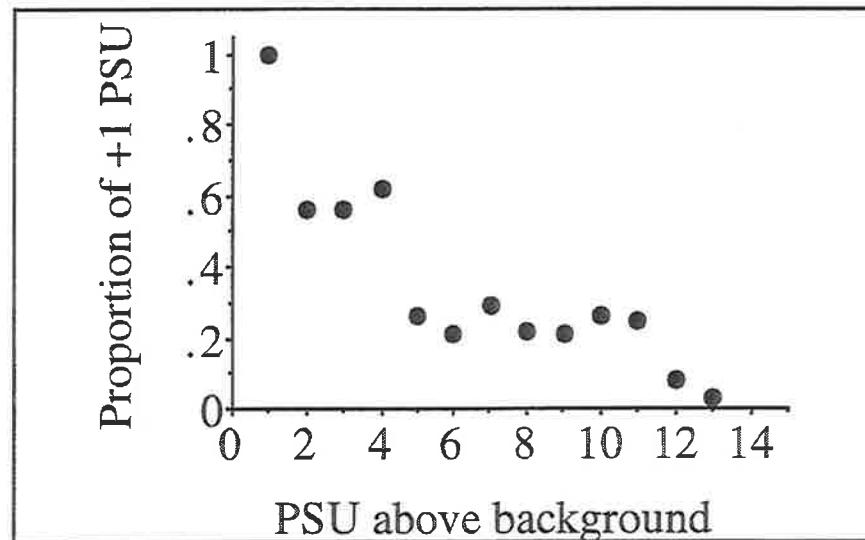


Figure 14. The relationship between the area of the plume at salinities above +1 ppt. The data are for the average of all sampling trips, and are normalized to the area covered by +1 ppt.

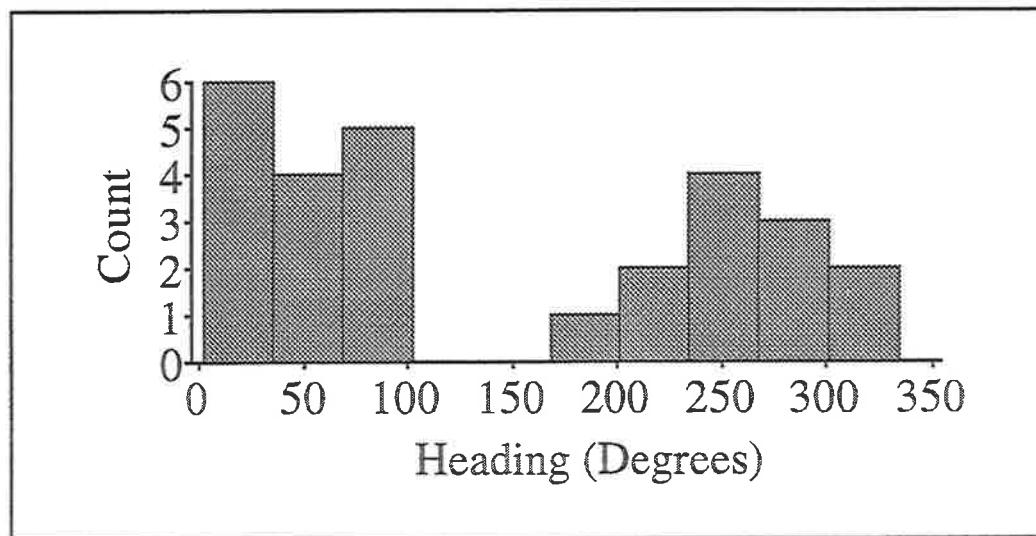


Figure 15. The frequency of the current headings at the sea bottom layer observed by the Louisiana Department of Wildlife and Fisheries during the brine plume dispersal studies (Anon 1995).

We examined variability in bottom water salinity by computing the ratio of the bottom water salinity at the eastern station to other stations near the brine diffuser site. Equipment monitoring salinity at Station 468, which is several km away from the diffuser, presumably would not detect a plume of 200 ha (equal to a rectangle of 2000 m X 1000 m). Furthermore, the plume is oriented in the general direction of the bottom currents, frequently moving between the 4 closest monitoring stations. The result (shown in Figure 16) shows that the variability is higher at Station 475 (west of the diffuser) during the continuous brine disposal operations (1980 to 1982), but then was less variable after brine diffuser operations became more irregular (beginning in 1983). A summary of the coefficient of variance for the ratio of salinity station #47x : salinity of station #473 is shown in Figure 17 (where 47x represents station 468, 474, 475 or 476). The anticipated result was observed: salinity and dissolved oxygen variations (the diffuser acts as an aerator) were greater when the brine diffuser was in operation, than not in operation.

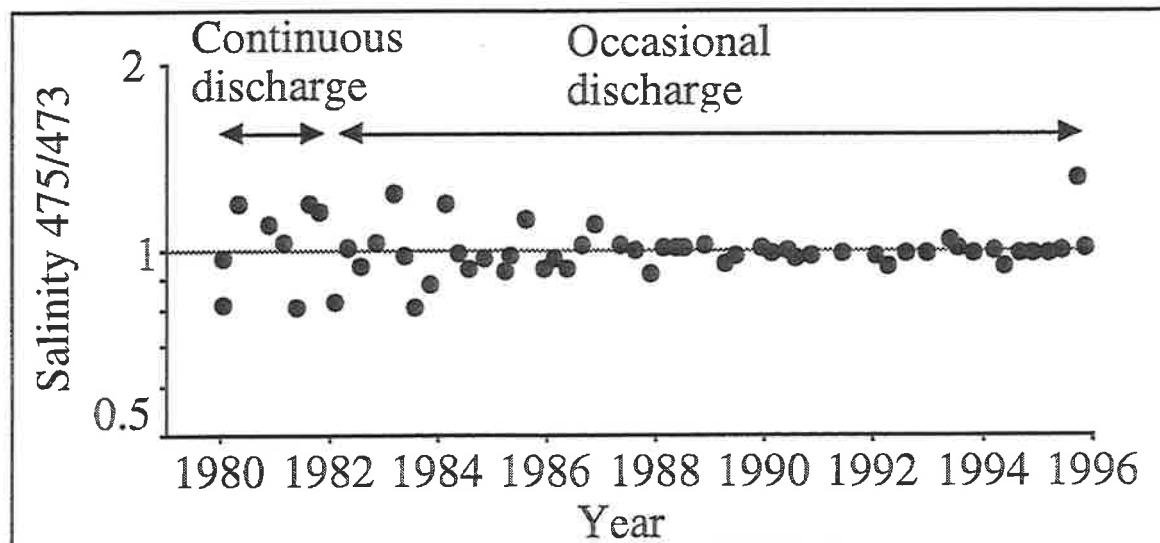


Figure 16. The average annual salinity in bottom water at stations near the brine disposal site, normalized to the salinity at station 473. Normalization was done by dividing the salinity at station 475 by the salinity at station 473 for the sampling day.

There are several important consequence of these observations. First, a plume does exist, it covers a large area (16 km^2), and the sampling station grid is close enough to detect it when the plume moves in the direction of the sampling station. Second, the sampling stations are positioned so that the plume may pass between them. This is a common problem when constructing a sampling design for offshore stations, which has been partially addressed by

placing sampling stations around the impact site so that they form an expanding spiral surrounding the impact site at least 2 times. Third, the area impacted by the plume covers more than is covered by an individual plume on any one day. The orientation of the plume is constantly changing directions. Because of this, the benthic sampling is more likely to both preserve and experience the chronic impacts of fluctuating and stochastic event frequency. Finally, this variation in plume direction may compromise the sensitivity of the BACI analyses.

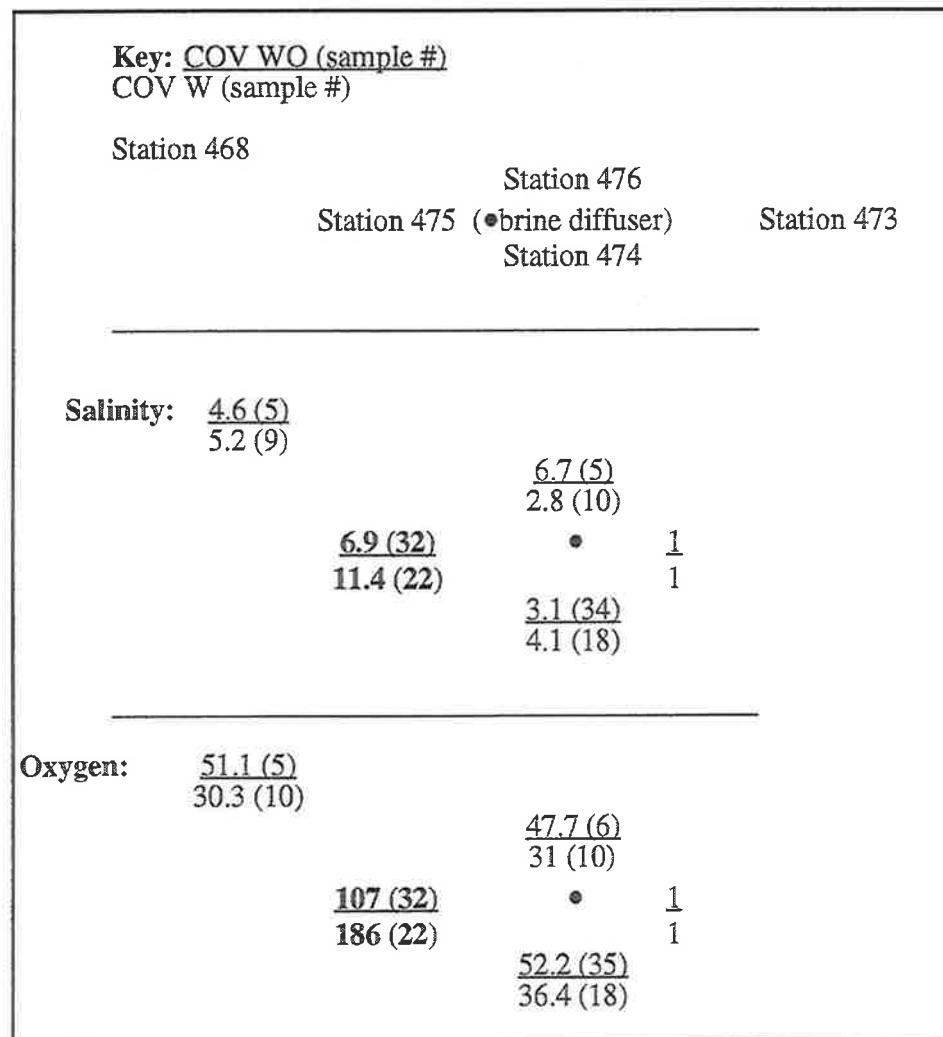


Figure 17. The Coefficient of Variance (COV) of either salinity or dissolved oxygen during periods with (W) and without (WO) brine disposal. Normalization of the data was done by dividing the observed salinity (or dissolved oxygen) at station 47x by the salinity (or dissolved oxygen) at station 473 for the sampling day. A COV was then determined for the normalized data (a ratio) for each station set. Stations 473, 474, 475 are 150 m east, south, west and north of the diffuser. Station 468 is approximately 0.9 km northwest of Station 473. Stations in bold have a much higher COV with the diffuser in operation, than when not in operation.

Stone (1977) reported that the estimated maximum freshwater removal rates for the dissolution of the Clovelly brine cavern amounted to 1.7 to 3.3 percent of the excess freshwater (total rainfall-evaporation) in the drainage basin. Based on the observed relationship between the average salinity and distance to the coast (0.6 ppt per 1000 m), Stone (1977; based on Light 1975, which is cited therein) predicted an estimated saltwater gradient increase landward of 425 to 850 m across a broad front. This movement would be for all salinity ranges. Changes of this size would probably be regionally insignificant because of the normal daily and seasonal mixing and movements of different water masses through the estuarine zone. However, they might be locally important if the intake structure was from an intake channel linked directly to the coast and lined by spoil banks. This does not seem to be the case for the Clovelly salt dome. We expect, therefore, that naturally-occurring large variations in salinity will mask any slight change in salinity resulting from removal of freshwater from the area during leaching operations.

5.7 Frequency and size of oil spills

The total amount of oil reported spilled during the study interval amounted to less than 5,000 barrels (Figure 4) and almost all of it was spilt offshore. Fifty-seven percent out of all the oil spilled during the study period occurred in April 1990, in 3 nearly equal, but separate, incidences.

A recurrence interval analysis, using the 17 year long data record of oil spills, predicted that a maximum monthly oil spill between 10,000 and 25,000 barrels will occur once in 50 years (Figure 18). This result compares very well with a predicted return period for an individual spill predicted in the Environmental Impact Statement (DOT, USGS 1976). That report estimated that a single spill of at least 10,000 barrels should occur once every 24 years (close to that predicted in Figure 18). The EIS also predicted that the maximum 'credible' spill would be 240,000 barrels, but over a period longer than 50 years (DOT, USGS 1976; page B-80). That maximum credible spill is 100 times larger than observed to date, but within the predicted recurrence interval for an event of that infrequency (i.e., a large, but rare, spill).

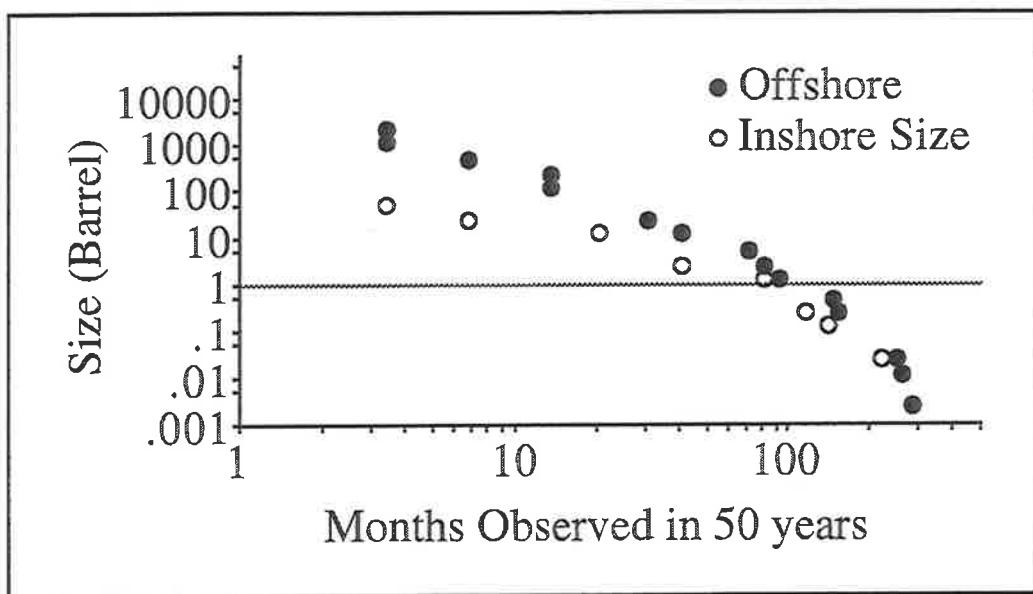


Figure 18. The recurrence frequency of oil spill size for 50 years.

5.8 Analysis of the April, 1990 Oil Spills

We used a multiple regression analysis and ANOVA to detect possible environmental changes in the month before, during and after April 1990. The results of the multiple regression analyses testing for the statistical significance between surface and bottom dissolved oxygen and whether the large oil spill occurred that month were different for surface and bottom waters. The variable spill-month (spill or no-spill occurred) was significant at the $p = 0.01\%$ level for both dissolved oxygen and Chlorophyll_a for the surface waters, but not for the bottom waters (Table 11).

The results for the Offshore data (there were no significant effects for the estuary stations) are summarized in Table 12. The comparison (using an ANOVA model) of the two months before to the two months after the three large April spills show significant differences for bottom salinities, surface Chlorophyll_a, bottom sulfate, bottom dissolved oxygen, bottom total solids, and surface DIN. All of the variables had a significantly lower value after the spill. If the time after is extended to 4 months, then only bottom salinity and bottom total solids still show significant differences. However, the observed differences in the later period are quite small, and are probably not ecologically important.

Table 11. Statistically significant results from a multiple regression model used to test for the significance of several variables, including whether there was a large oil spill that month, on either dissolved oxygen or Chlorophyll_a concentrations. Only data from 1985 to 1995, and March through July were used.

A. Surface Dissolved oxygen
 $R^2 = 0.20$, $F = 35.71$ $p = 0.0001$ $n = 548$

<u>Variable</u>	<u>Coefficient</u>	<u>Probability</u>
Intercept	14.46	
Spill month	-1.90	0.0012
Alkalinity	-0.028	0.0018
Chl a	0.069	0.0001
$\text{NO}_3 + \text{NO}_2$	0.0267	0.0007

B. Surface Chl a
 $R^2 = 0.20$, $F = 35.2$ $p = 0.0001$ $n = 550$

<u>Variable</u>	<u>Coefficient</u>	<u>Probability</u>
Intercept	-8.72	
Spill month	9.24	0.0064
Oxygen	0.069	0.0001
$\text{NO}_3 + \text{NO}_2$	-0.274	0.0001
Salinity	-0.589	0.0001

Table 12. Results of an ANOVA analysis to look at the possible impacts of the LOOP offshore oil spills that occurred during April, 1990.

A. Offshore: 2 months before, 2 months after.

<u>Variable</u>	<u>Mean Values</u>		<u>Before:After Model</u>	
	<u>Before</u>	<u>After</u>	<u>F</u>	<u>P>F</u>
Surface Salinity (ppt)	23.0	22.5	0.5	0.47
Bottom Salinity (ppt)	32.7	30.3	15.6	0.00
Surface Chlorophyll_a (mg/m ³)	7.5	5.9	8.2	0.01
Bottom Chlorophyll_a (mg/m ³)	1.9	3.9	1.6	0.21
Surface Sulfate (mg/l)	1357	1349	0.4	0.52
Bottom Sulfate (mg/l)	2118	2026	7.7	0.00
Surface TKN (ug-at/l)	9.4	16.4	0.3	0.59
Bottom TKN (ug-at/l)	7.8	18.8	0.1	0.71
Surface Oxygen (mg/l)	9.8	7.9	2.1	0.52
Bottom Oxygen (mg/l)	6.0	3.8	16.1	0.00
Surface Total Solids (mg/l)	25,553	24,743	0.7	0.40
Bottom Total Solids (mg/l)	36,261	34,359	17.7	0.00
Surface Suspended Solids (mg/l)	15.1	12.0	1.5	0.23
Bottom Suspended Solids (mg/l)	24.8	28.0	0.3	0.57
Surface DIN (mg/l)	14.8	6.2	4.0	0.04
Bottom DIN (mg/l)	11.0	17.6	0.1	0.77

B. Offshore: 4 months before, 4 months after.

<u>Variable</u>	<u>Mean Values</u>		<u>Before:After Model</u>	
	<u>Before</u>	<u>After</u>	<u>F</u>	<u>P>F</u>
Surface Salinity (ppt)	25.3	22.4	2.2	0.77
Bottom Salinity (ppt)	32.4	31.4	10.7	0.00
Surface Chlorophyll_a (mg/m ³)	8.6	5.1	0.0	0.96
Bottom Chlorophyll_a (mg/m ³)	2.1	3.7	2.8	0.10
Surface Sulfate (mg/l)	1820	13.3	1.1	0.31
Bottom Sulfate (mg/l)	2365	2045	1.4	0.24
Surface TKN (ug-at/l)	6.7	31.2	0.8	0.37
Bottom TKN (ug-at/l)	5.0	35.2	0.3	0.56
Surface Oxygen (mg/l)	10.5	7.4	0.0	0.85
Bottom Oxygen (mg/l)	6.7	2.6	1.7	0.20
Surface Total Solids (mg/l)	28680	25470	0.0	0.93
Bottom Total Solids (mg/l)	36199	35549	9.9	0.00
Surface Suspended Solids (mg/l)	13.2	8.9	1.4	0.24
Bottom Suspended Solids (mg/l)	23.7	20.5	0.0	0.88
Surface DIN (mg/l)	9.7	7.5	1.6	0.21
Bottom DIN (mg/l)	8.2	21.5	0.1	0.75

6.0 Summary and Conclusions

6.1 Summary of Results and Implications

Results from an analysis of the water quality parameters measured in this monitoring program showed limited evidence of extensive changes due to the brine disposal operations or the small (<100 barrels) oil spill. The variability introduced by the Mississippi River is a significant complication of the analysis because of its size and proximity to the monitoring stations. A change in the measured parameter values between a before-and-after impact analysis may not be due to the potential impact factor (e.g., brine), but actually be the result of long-term trends or events in environmental factors unrelated to the LOOP operations. The fixed location of the monitoring station network and sampling frequency are often too sparse to detect these impacts. Also, water masses are moving through the sampling area quickly. In other words, if an impact has occurred, it is likely that the water mass moved out of the area before the monthly sampling occurred. This does not preclude the necessity of monitoring (see below).

The sled sampling by the State Department of Wildlife and Fisheries clearly located a brine plume whose position on the bottom moves among the stations, adding variability to the measured parameters, and perhaps compromising the results of the BACI sampling design. The variability in bottom salinity at station 473, for example (see Figure 14), probably reflects these movements among and between sampling locations. The BACI analysis cannot, *a priori*, determine if the plume is over a station or not and a nearby station may be an adequate control station in one month, but an impact station in another month. Fixed control and impact stations cannot, therefore, be assigned.

The large oil spill that occurred in April 1990 provided an opportunity to test for impacts from the anticipated much larger spill yet to occur (10X larger in 50 years, and up to 100X larger according to the EMP). There were significant differences in several important parameters immediately after the spill (chiefly phytoplankton pigments, sulfate and oxygen concentration) in the offshore zone. Tests of their statistical validity indicate that no similar results were found in the estuarine zone or with longer periods after the spill (up to 4 months later, for example).

6.2 General Considerations for Continued Sampling

This section is a summary of the more detailed discussion (with specific recommendations) that can be found in Task 3. It is included here because some readers may

only look at the Task 2 report. The data sets we examined indicated that the current monitoring program, as identified in the original environmental management plan, worked (we were able to document spatial and temporal trends and some impacts). However, some readjustments are desirable based on the experience of the last 17 years.

Water chemistry monitoring measurements are necessary because they serve as ancillary measurements to interpret the background conditions, against which other impacts are measured. Including them in a monitoring program will contribute to the identification of 'false positives', such as mis-identifying an increase or decrease as causally related to an oil spill, rather than to seasonal or long-term changes in the Mississippi River. However, experience brings better understanding and the opportunity to improve the existing monitoring network for water quality. Some suggestions are made here that are based on these results, professional experience, and literature reviews. It is quite natural that monitoring programs evolve with experience on site and from that gathered by other competent investigators. Federal and State governments have responsibility for the protection of natural resources, and monitoring is recognized as a useful instrument to prevent, minimize and mitigate various impacts, as well as the presumed or suggested impacts.

6.2.1 Oil Spill Size

The maximum 'credible oil spill' estimated in the original EIS was 240,000 barrels, which is 100 times larger than that spilt through 1996. It is based on a pre-project spill recurrence interval that is substantiated by experience since 1978, and which includes a one month total spill of about 23,000 barrels (April, 1990). In other words, the recurrence interval graph of the original projections in the EIS and the subsequent events are nearly coincidental. Fortunately, this very large spill has not happened (yet). We were able to detect changes in water quality in the much smaller spill (about 1% of the predicted largest anticipated oil spill), which should raise concerns about the impacts of a large spill. These results and observations suggest that a credible monitoring program should take into account the information needs of this larger, yet unrealized oil spill.

6.2.2 Station Locations

Eighty-seven percent of the inshore oil spills occurred at the Clovelly salt dome site (Station #38). There are 24 stations with record lengths ≥ 10 years, but only one at Clovelly

(#38). Station 39 is within 1.5 km of #38 (WSW), #16 is within 2.5 km (WSW), and #464 is within 4 km (NE). More monitoring stations closer to Station #38 are needed.

The station locations offshore are set in a cross shaped pattern around the diffuser, but the plume appears to move between many of these. Some sort of adaptive sampling scheme (network of vertical profiles, towed vehicle) to collect data on the 3-dimensional structure of the brine plume should be implemented if major brine discharges occur.

6.2.3 Background Conditions or 'False Positives'

The environmental conditions inshore and offshore are variable from year-to-year and month-to-month and from station to station. Water quality parameters should be included in a monitoring program to identify seasonal or long-term trends that complicate analyses, but also might be mis-identified as impacts.

6.2.4 Baseline Conditions for a LOOP Related Mega-oil Spill

Current speeds throughout the region suggest that water masses are replaced in days, not weeks or months. Events like a large (yet unobserved) oil spill similar to that predicted in the original environmental management plans, must be sampled within weeks of the event to establish reasonable baseline conditions against which to measure impacts. If the region were homogenous, not near the Mississippi River, etc., then baseline conditions might be more safely predicted from less frequent sampling (e.g., quarterly). A second, related issue, is that the monitoring program should be prepared to mobilize for a Mega-oil spill. The dispersal of surface water and oil will be spread far beyond the LOOP facility vicinity, and probably spread westward (assuming that is the dominant current direction). However, below the surface, there may be effects spreading in different directions from that in the surface layer.

6.2.5 Relationship of Water Chemistry to Biologic Components

The analysis of the water chemistry data should be integrated with the biological data sets, on an ongoing basis. For example, the benthic community is the logical analytical subject for competent investigation of impacts near the brine disposal, and for oil spills (past and present). The benthic community is subject to a probable enhancement around the diffuser, if results from other studies are appropriate for this site. The immediate area of the brine plume (about 4 km^2 for a 1+ ppt plume) sweeps over an area of 16 km^2 . The plume orientation is very

responsive to currents, and the plume may move between the stations without detection by the present sampling grid. The benthic community is exposed to chronic conditions and some animals will remain for weeks and months within this brine plume shadow. The benthic data were not analyzed as part of this analysis. The LOOP benthic data should be analyzed by benthic ecologists to check on the implications of the results in this report, including: the possibility of a brine plume 'halo' or disturbance area around the brine diffuser; the impacts of the April 1990, oil spills, the presence of brine or oil spill chemical markers in sediments and appearing coincidentally in time or space with changes in the water chemistry, nekton and plankton; detection of long-term trends in the benthic data that can be explained by the regional influences of the Mississippi River.

The water column turns over in a matter of days, because of currents. The area is accumulating sediments, so dated cores might be useful to investigate the halo, if present, around the plume, and to retrospectively determine impacts near the brine diffuser. The sediments are also the best depository of information on the effects (if any) of a large oil spill (of presently experienced spill or future larger sized spill).

6.2.6 Temporal Scales

The long-term stations should be continued in any re-designed sampling plan. Indeed, the long-term nature of the monitoring effort has numerous invaluable benefits for the State, LOOP, LLC., and the various agencies involved. The LOOP facility is unique to the lower 48 states, and is of unprecedented economic significance in terms of tonnage and strategic economic positioning. It is located, however, directly in the middle of the finest and largest continental shelf fishing zones in the US and the infrastructure is aging. Improving our understanding of the long-term variations in continental shelf ecosystems (water column to benthos; zooplankton to fish) can only help renewable and non-renewable natural resource users manage this environment together, where necessary, and with informed judgment. The data sets we examined are useful for the intent of the monitoring program as identified in the original environmental management plan, but some readjustments are desirable based on the experience of the last 20 years. The Superport is still operating and all significant impacts have probably not occurred (e.g., the unrealized large oil spill). The responsibilities for management have not diminished with time.

6.2.7 Other Efforts

This monitoring program is an exceptionally valuable opportunity for science and management interests. It would be useful to explore ways to open up these efforts on an ongoing basis to provide data for other scientific efforts, and to publish analyses of the data arising from them.

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8. Appendices

Appendix A. Listing of all LDWF LOOP water chemistry stations.

Figure A-1. LDWF LOOP Water Chemistry station listing. Listed, for each station is the station number, the location (latitude and longitude), and the number of sampling trips for each year, and the total months of data for the station (for all years). The total number of months of data for each year, and the number of stations sampled each year is listed in the bottom two rows..

Stat.	Lat.	Long.	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	Total	
1	29.4197	-89.9469	11	9	12	12	11	8	7	6	0	0	0	0	0	0	0	0	0	0	76	
2	29.2894	-89.9303	11	9	12	12	11	8	7	6	0	0	0	0	0	0	0	0	0	0	76	
3	29.2717	-89.9328	11	9	12	11	11	8	7	6	0	0	0	0	0	0	0	0	0	0	75	
4	29.1833	-89.9000	11	8	11	9	10	8	6	2	0	0	0	0	0	0	0	0	0	0	65	
5	29.2058	-90.0456	10	12	12	12	12	11	11	12	12	12	11	11	11	12	12	12	12	12	209	
6	29.2103	-90.1050	9	12	12	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	46	
7	29.2550	-90.1894	9	12	12	12	12	11	12	12	12	12	12	12	8	12	12	12	12	12	208	
8	29.2650	-90.1039	9	12	12	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	62	
9	29.2700	-90.0322	9	12	12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	
10	29.2442	-90.2603	6	12	12	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	59	
11	29.3347	-90.2383	4	11	12	12	1	1	0	0	0	0	0	0	0	0	0	0	0	0	41	
12	29.4094	-90.1936	4	11	12	12	12	11	12	12	12	11	3	0	0	0	12	11	5	0	140	
13	29.4233	-90.1567	4	11	12	12	12	11	12	12	12	12	12	12	11	12	12	11	5	0	185	
14	29.5297	-90.1647	8	12	12	12	12	11	11	12	12	12	12	12	11	11	12	12	12	10	205	
15	29.5036	-90.2161	7	12	12	12	12	12	12	12	12	12	12	12	11	12	11	11	12	12	8	204
16	29.4694	-90.2814	7	12	12	12	12	12	12	8	0	0	0	0	0	0	0	1	0	0	88	
17	29.6658	-90.1622	8	11	12	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	44	
18	29.6594	-90.2144	5	11	12	12	11	11	11	12	12	12	12	11	11	12	11	12	12	10	200	
19	29.6908	-90.2208	7	11	12	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	43	
20	29.6983	-90.1775	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
21	29.0950	-90.1608	8	12	12	12	12	12	11	10	12	11	11	11	10	9	11	11	12	11	198	
22	29.1044	-90.1131	8	12	12	11	12	12	11	10	11	11	11	11	11	9	11	11	12	11	197	
23	29.1550	-90.0950	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
24	29.6922	-90.4675	3	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	
25	29.8300	-90.6219	3	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	
26	29.8319	-90.6347	3	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	
27	29.8531	-90.6308	3	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	
28	29.9300	-90.7472	3	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	
29	29.9136	-90.7983	3	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	
30	29.9711	-90.8692	3	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	
31	29.1239	-90.1389	4	12	12	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	41	
32	29.2256	-90.2022	0	9	12	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	34	
33	29.1481	-90.2025	0	10	12	12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	35	
34	29.1206	-90.1728	0	10	12	12	11	11	12	12	10	11	12	11	11	11	12	12	12	12	194	
35	29.1228	-90.0833	0	4	12	11	12	12	11	10	12	11	11	11	11	11	12	11	12	11	185	
36	29.1000	-90.1150	0	4	12	11	12	12	11	10	12	12	11	11	11	12	12	11	12	11	187	
37	29.1417	-90.2211	0	0	12	12	12	12	12	11	12	12	11	12	11	12	12	11	12	11	187	
38	29.4744	-90.2550	0	0	11	12	12	12	12	12	11	12	9	12	12	11	12	12	11	11	185	
39	29.4731	-90.2697	0	0	0	0	0	0	4	12	12	12	11	10	12	11	12	12	9	8	113	
40	29.4072	-90.1864	0	0	0	0	0	0	0	0	0	9	12	10	11	0	0	0	0	0	42	
50	28.8089	-90.0764	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
51	28.9450	-90.0308	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
52	28.9133	-89.9847	0	0	3	4	10	10	11	10	11	10	11	10	11	9	11	9	12	11	153	
53	28.8850	-90.0250	0	0	3	4	10	10	11	10	10	10	11	11	11	11	12	11	12	11	158	
54	28.9367	-90.0686	0	0	3	4	10	10	11	9	10	10	10	11	11	10	11	10	12	11	153	
55	28.8633	-90.0253	0	0	0	0	10	10	11	10	10	10	11	11	11	10	11	11	12	11	149	
407	29.2550	-90.1894	0	2	4	4	4	4	4	3	2	3	4	3	4	4	4	4	4	4	61	
408			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
410			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
419	29.6908	-90.2208	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
422	29.1044	-90.1131	0	2	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	18	
434	29.1206	-90.1728	0	2	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	

Figure A-1 (Continued)

Stat.	Lat.	Long.	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	Total	
435	29.1228	-90.0833	0	2	4	4	4	4	4	4	4	2	2	2	4	4	4	3	4	4	59	
460	29.1297	-90.1458	0	2	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	
461	29.4781	-90.2647	0	0	4	4	4	4	4	4	4	3	2	3	3	4	4	4	3	4	58	
462	29.2547	-90.1961	0	2	4	4	4	4	4	4	4	3	3	2	3	4	4	4	4	4	61	
463	29.4756	-90.2553	0	2	5	4	4	4	4	4	3	1	3	2	3	4	4	4	3	4	58	
464	29.5019	-90.2175	0	2	4	4	4	4	4	4	3	4	2	0	3	4	4	4	4	4	58	
465	29.7783	-90.6283	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
466	29.7739	-90.6294	0	2	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	
467	29.1047	-90.1292	0	1	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	13	
468	29.0997	-90.1217	0	1	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	17	
469	29.0964	-90.1267	0	1	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	17	
470	29.0906	-90.1231	0	1	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	17	
471	29.0872	-90.1161	0	1	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	17	
472	29.0967	-90.1108	0	1	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	17	
473	29.1003	-90.1133	0	1	3	4	4	4	4	4	4	2	2	3	4	4	4	3	6	4	60	
474	29.0978	-90.1147	0	1	4	4	4	4	4	4	4	1	2	3	3	4	4	3	4	4	57	
475	29.1003	-90.1167	0	1	5	4	4	4	4	4	4	2	2	1	4	4	4	3	4	4	58	
476	29.1031	-90.1153	0	1	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	17	
477	29.0358	-90.0967	0	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
478	29.0358	-90.0867	0	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	
479	28.9367	-90.0686	0	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
480	28.9361	-90.0597	0	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
481	28.8850	-90.0250	0	1	3	4	3	5	4	4	4	1	2	3	4	4	4	3	4	4	57	
482	28.9133	-89.9847	0	1	3	4	3	5	4	4	4	2	3	0	4	4	4	3	4	4	56	
483	29.7658	-90.6339	0	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	
484	28.8511	-90.0717	0	0	2	4	3	5	4	4	4	1	1	1	3	4	4	3	4	4	51	
485	28.8661	-90.0153	0	0	2	4	3	5	0	0	0	0	0	0	0	0	0	0	0	0	14	
486	28.8792	-90.0025	0	0	2	4	3	5	0	0	0	0	0	0	0	0	0	0	0	0	14	
487	29.0903	-90.1056	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	5	
500	29.1039	-90.1183	0	0	0	4	10	10	0	0	0	0	0	0	0	0	0	0	0	0	24	
501	29.0964	-90.1183	0	0	0	3	10	10	0	0	0	0	0	0	0	0	0	0	0	0	23	
502	29.0972	-90.1114	0	0	0	3	10	10	11	9	12	12	12	12	12	12	12	11	10	12	11	159
505	29.0956	-90.0861	0	0	0	3	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	23
506	29.0872	-90.1178	0	0	0	4	10	9	0	0	0	0	0	0	0	0	0	0	0	0	0	23
507	29.0894	-90.1022	0	0	0	4	10	10	11	10	7	0	0	0	0	0	0	0	0	0	0	52
535	29.1228	-90.0833	0	0	0	0	8	10	11	10	11	8	6	3	5	11	11	10	12	11	127	
704	28.9961	-90.0831	0	0	0	0	0	11	10	7	5	12	12	10	12	11	10	12	11	123		
706	28.9417	-90.0694	0	0	0	0	0	11	10	10	12	11	11	10	12	11	10	12	11	131		
708	28.8842	-90.0250	0	0	0	0	0	11	10	11	11	12	11	11	12	10	10	12	11	132		
711	28.7847	-90.1461	0	0	0	0	0	0	0	4	6	0	0	0	0	0	0	0	0	0	10	
713	28.8492	-90.1650	0	0	0	0	0	0	0	4	7	0	0	0	0	0	0	0	0	0	11	
719	29.0428	-90.2186	0	0	0	0	0	0	0	4	7	0	0	0	0	0	0	0	0	0	11	

Total Months: 195 352 492 522 422 408 358 337 333 306 297 283 294 317 320 306 319 321 6182
 Stations per year: 32 62 70 75 62 53 41 42 40 39 37 34 36 36 36 37 36 38

----- STATION=3 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	75	2.5440640	0.5875637	1.5240000	4.5720000
DEPTH1	75	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	71	20.7070423	7.0879843	6.0000000	37.100000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	73	8.2917808	1.8370231	3.6000000	12.8000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	75	27.5466667	22.1178009	3 .0000000	144.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	75	22718.08	7863.32	6450.00	46268.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	75	61.4666667	72.1652258	4.0000000	560.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	75	2779.55	7863.60	6500.00	42690.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	67	11.5134328	10.9725262	0	43.3000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	75	106.9666667	11.8851410	72.0000000	130.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	74	871.2297297	388.2777408	100.0000000	2350.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	75	2.9106667	3.5244924	0	26.9000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	75	233.6000000	90.9410263	32.0000000	440.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	74	0.7378378	0.5699562	0	2.8000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	75	2.2653333	1.4288999	0	8.0000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	75	1.3106667	1.3518329	0	9.9000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	75	7.9986667	18.0727920	0 1 25.3000000	0
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	75	28.1773333	27.1324159	0	130.6000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=4 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	65	11.8309292	1.1288051	6.0960000	14.6304000
DEPTH1	65	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	63	11.8291429	1.1455138	6.0960000	14.6304000
SAL1	55	23.2018182	6.3854723	10.3000000	37.6000000
SAL2	0	.	.	.	.
SAL3	49	30.7448980	3.4574232	21.0000000	37.6000000
OXYGEN1	62	9.3403226	2.6940408	0.5000000	16.1000000
OXYGEN2	0	.	.	.	.
OXYGEN3	58	5.0982759	3.2701999	0	13.6000000
TURBID1	65	16.2000000	19.4021584	0	125.0000000
TURBID2	0	.	.	.	.
TURBID3	59	18.9661017	29.4413304	0	180.0000000
TDS1	64	25793.69	7883.43	4558.00	50744.00
TDS2	0	.	.	.	.
TDS3	59	33477.12	6584.63	14046.00	58834.00
SS1	64	47.6250000	43.4450940	0	222.0000000
SS2	0	.	.	.	.
SS3	59	64.1016949	64.8769910	0	390.0000000
TS1	64	25841.16	7894.89	4594.00	50816.00
TS2	0	.	.	.	.
TS3	59	33540.85	6587.21	14072.00	58890.00
CHLOR_A1	59	9.7864407	11.0556657	0	41.7000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	33	5.9787879	5.6017161	0	25.4000000
ALK1	65	109.5538462	12.3453316	70.0000000	144.0000000
ALK2	0	.	.	.	.
ALK3	58	113.2586207	11.1064393	58.0000000	131.0000000
SULFATE1	65	947.5384615	355.1045655	225.0000000	2000.00
SULFATE2	0	.	.	.	.
SULFATE3	59	1206.97	399.9688335	115.0000000	1950.00
AMMONIA1	65	2.5061538	2.4922929	0	17.3000000
AMMONIA2	0	.	.	.	.
AMMONIA3	59	6.1474576	12.2463697	0	88.6000000
CALCIUM1	65	248.6461538	97.0084453	44.0000000	480.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	59	298.8474576	118.1373855	60.0000000	528.0000000
PHOSPHA1	64	0.5718750	0.6198998	0	2.4000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	59	2.0016949	2.1110948	0	14.1000000
T_PHOS1	65	1.5646154	1.1514164	0.1000000	5.5000000
T_PHOS2	0	.	.	.	.
T_PHOS3	59	2.0016949	2.1110948	0	14.1000000
SILICA1	65	1.0276923	1.3472782	0	8.8000000
SILICA2	0	.	.	.	.
SILICA3	59	1.1101695	1.1371008	0	6.6000000
NO3NO2_1	65	5.0646154	9.9596127	0	48.3000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	59	4.1033898	5.9713097	0	22.2000000
TKN1	65	22.2507692	20.0718407	0	74.1000000
TKN2	0	.	.	.	.
TKN3	59	19.0898305	15.5432621	0.9000000	69.4000000

----- STATION=5 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	209	4.0978699	1.1626759	0.3000000	7.9000000
DEPTH1	211	0.2989687	0.0916393	0.1000000	0.8000000
DEPTH2	0	.	.	.	.
DEPTH3	204	4.1655392	1.2656328	2.4384000	12.0000000
SAL1	207	22.1509087	5.9300215	8.3000000	35.5000000
SAL2	0	.	.	.	.
SAL3	196	22.9220066	5.8999359	8.6000000	35.5000000
OXYGEN1	209	8.1236842	1.8022492	2.7000000	13.8000000
OXYGEN2	0	.	.	.	.
OXYGEN3	197	7.6776650	1.7102732	2.5000000	12.6000000
TURBID1	203	19.0266010	17.3871007	0	97.0000000
TURBID2	0	.	.	.	.
TURBID3	193	26.5673575	37.8680181	2.0000000	443.0000000
TDS1	210	25111.46	7389.10	4440.00	51226.00
TDS2	0	.	.	.	.
TDS3	197	26587.99	8042.33	3678.00	52866.00
SS1	210	46.7380952	43.1108838	0	374.0000000
SS2	0	.	.	.	.
SS3	197	62.9898477	70.9185355	0	700.0000000
TS1	210	25158.20	7386.74	4466.00	51242.00
TS2	0	.	.	.	.
TS3	198	26627.62	8042.52	3694.00	52886.00
CHLOR_A1	205	12.3554146	10.7533636	0	88.1000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	13	8.5000000	7.6214609	0.8000000	27.2000000
ALK1	210	106.0428571	14.0014719	50.0000000	154.0000000
ALK2	0	.	.	.	.
ALK3	200	110.3950000	11.7400220	72.0000000	146.0000000
SULFATE1	208	1386.86	648.0900850	100.0000000	3153.00
SULFATE2	0	.	.	.	.
SULFATE3	198	1442.34	662.1904071	125.0000000	3299.00
AMMONIA1	208	2.7947596	2.9058520	0	15.5000000
AMMONIA2	0	.	.	.	.
AMMONIA3	199	3.0950754	3.3702724	0	17.4000000
CALCIUM1	210	267.2285714	77.9714409	1.0000000	492.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	200	273.3550000	72.4798983	64.0000000	448.0000000
PHOSPHA1	207	0.6564251	0.8477152	0	8.6700000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	197	0.7400508	0.6743542	0	5.3900000
T_PHOS1	206	3.7945146	3.1439313	0	19.8300000
T_PHOS2	0	.	.	.	.
T_PHOS3	196	4.5360204	4.3660034	0	42.2800000
SILICA1	208	0.8862500	1.2011518	0	14.4000000
SILICA2	0	.	.	.	.
SILICA3	199	0.9129146	1.1656717	0	11.4000000
NO3NO2_1	208	6.4767788	10.4384734	0	55.3000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	198	6.4530303	10.1816073	0	55.3000000
TKN1	206	62.7003883	50.7706125	0	252.2200000
TKN2	0	.	.	.	.
TKN3	197	67.9458376	65.4432591	0	588.8700000

----- STATION=6 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	46	2.1932348	0.4877628	1.5240000	3.0480000
DEPTH1	46	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	45	21.8822222	4.7732821	12.6000000	29.9000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	45	7.6111111	1.5249772	3.6000000	10.8000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	46	35.5652174	21.0075671	4.0000000	97.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	45	23681.33	6162.89	11180.00	38464.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	45	72.0000000	66.8634973	12.0000000	448.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	45	23753.33	6172.90	11210.00	38514.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	44	14.0090909	12.9344828	0	77.7000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	46	104.9130435	15.6827238	76.0000000	138.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	46	797.3260870	340.5698528	100.0000000	1750.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	46	2.7586957	2.9277656	0	15.4000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	46	233.2173913	100.8333968	64.0000000	440.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	46	0.4913043	0.5853113	0	3.2000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	46	2.1260870	1.9471272	0	9.8000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	46	2.0826087	1.8571549	0	10.1000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	45	1.4711111	2.7454609	0	13.1000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	46	11.6173913	12.8846386	0	58.8000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=7 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	268	1.5905507	0.4758732	0.1000000	4.0000000
DEPTH1	246	0.2957024	0.0878831	0	0.8000000
DEPTH2	0	.	.	.	.
DEPTH3	58	1.4050759	0.5162621	0.3000000	1.8288000
SAL1	220	17.5611982	4.6520045	5.8000000	27.7000000
SAL2	0	.	.	.	.
SAL3	57	19.0314561	3.9574709	8.6000000	28.5000000
OXYGEN1	220	7.1527273	1.8412924	2.6000000	14.9000000
OXYGEN2	0	.	.	.	.
OXYGEN3	58	7.1137931	1.8959281	2.3000000	11.5000000
TURBID1	213	21.0136150	17.0984456	1.4000000	109.0000000
TURBID2	0	.	.	.	.
TURBID3	57	35.3017544	33.2168013	5.0000000	200.0000000
TDS1	218	20008.04	5838.13	6378.00	46156.00
TDS2	0	.	.	.	.
TDS3	58	20737.22	5800.51	2877.00	31552.00
SS1	218	43.8486239	31.2455715	0	162.0000000
SS2	0	.	.	.	.
SS3	58	88.5344828	94.5323143	0	592.0000000
TS1	219	20089.11	5854.70	6378.00	46222.00
TS2	0	.	.	.	.
TS3	58	20825.76	5802.97	2906.00	31658.00
CHLOR_A1	244	13.8264754	8.6234389	0.7000000	70.5000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	27	12.7274074	6.5012375	4.0000000	25.2000000
ALK1	221	107.4072398	16.8562571	40.0000000	156.0000000
ALK2	0	.	.	.	.
ALK3	58	109.0344828	15.2660218	78.0000000	146.0000000
SULFATE1	219	1068.84	560.4940102	125.0000000	3273.00
SULFATE2	0	.	.	.	.
SULFATE3	58	1178.55	586.9755718	260.0000000	2793.00
AMMONIA1	218	2.9566972	3.8058506	0	28.8000000
AMMONIA2	0	.	.	.	.
AMMONIA3	57	2.9095614	3.3120975	0	18.7000000
CALCIUM1	221	220.0588235	63.5180803	48.0000000	450.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	58	237.3103448	61.0062427	104.0000000	428.0000000
PHOSPHA1	217	0.6103687	0.8113819	0	7.0000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	58	0.5908621	0.4853911	0	2.2000000
T_PHOS1	216	4.4237500	3.5322815	0	23.9700000
T_PHOS2	0	.	.	.	.
T_PHOS3	57	5.4431579	3.6882754	1.2000000	16.8000000
SILICA1	218	1.2572477	1.1965572	0	8.5000000
SILICA2	0	.	.	.	.
SILICA3	58	1.1779310	1.0737486	0.0300000	4.3400000
NO3NO2_1	218	1.6175229	2.8904279	0	18.3000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	58	1.1996552	1.7819957	0	7.5000000
TKN1	216	86.7498611	61.6786416	0	285.8900000
TKN2	0	.	.	.	.
TKN3	57	89.0471930	60.5411911	0	254.880000

----- STATION=8 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	62	1.6736645	0.4425330	0.7000000	2.6000000
DEPTH1	62	0.2987226	0.0967470	0	0.6000000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	61	18.7867213	4.6175198	8.7000000	27.9000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	60	7.5841667	1.7609582	3.1000000	11.7000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	61	35.7360656	23.0968038	3.5000000	99.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	60	21115.07	5939.09	7136.00	34406.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	60	73.6666667	74.9247457	2.0000000	542.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	61	20965.90	6134.90	7186.00	34444.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	61	12.9378689	9.1927851	0	41.4000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	62	105.0000000	16.2924100	66.0000000	140.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	61	822.1311475	421.5899064	125.0000000	1792.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	61	2.0278689	2.1115185	0	8.5000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	62	222.9032258	86.1935888	64.0000000	536.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	61	0.4537705	0.4004255	0	1.9000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	61	3.2388525	2.3095296	0.1000000	10.5300000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	62	1.9683871	1.9918467	0.0700000	11.6000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	60	1.6328333	3.2732113	0	15.1000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	60	39.4933333	47.9865993	0	152.1800000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=9 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	45	1.9981333	0.4886988	1.2192000	3.6576000
DEPTH1	45	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	44	18.1522727	5.3992458	9.6000000	29.0000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	44	8.4409091	1.4496701	5.7000000	12.4000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	44	42.1590909	31.9344847	4.0000000	153.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	45	19849.60	7126.80	5754.00	35130.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	45	227.6444444	1089.97	4.0000000	7370.00
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	45	20076.13	7021.45	5794.00	35178.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	40	15.5000000	8.9393684	0.8000000	37.6000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	44	97.0681818	14.8016305	68.0000000	126.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	44	634.1136364	321.1339803	200.0000000	1241.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	44	2.1909091	2.7113730	0	13.3000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	45	215.8222222	100.5727437	48.0000000	508.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	44	0.5613636	0.5714998	0	2.1000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	44	2.5590909	2.1833746	0	10.3000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	45	3.0266667	4.0090466	0	27.0000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	44	1.6977273	3.0169666	0	12.8000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	44	11.4318182	10.4323016	0.9000000	61.3000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=10 -----					
Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	59	2.1031864	0.6971656	0.4000000	5.7912000
DEPTH1	59	0.3204475	0.1270571	0	0.7000000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	56	18.2142857	4.7728596	7.8000000	26.3000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	58	7.3629310	1.8207036	4.2000000	12.0000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	59	35.2118644	19.1754700	2.2000000	97.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	58	21283.72	10335.07	2370.00	85148.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	58	67.5517241	46.4622739	0	222.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	58	21351.17	10337.05	2434.00	85216.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	53	15.7692453	10.6160895	0	60.4000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	59	109.8813559	19.3836803	72.0000000	156.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	59	792.3898305	469.5222082	150.0000000	1885.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	59	2.9911864	4.5017767	0	29.3000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	59	224.2711864	87.4713412	20.0000000	492.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	59	0.6767797	0.4910033	0	2.1200000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	59	3.8600000	2.4795891	0.5000000	10.2500000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	58	2.0260345	1.9913012	0.0800000	10.4000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	59	0.9166102	1.5215811	0	6.1000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	58	43.2651724	48.3754973	0	162.7000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=11 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	41	2.6019512	0.4422099	1.8288000	3.9624000
DEPTH1	41	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	40	10.1850000	5.4499377	1.5000000	25.1000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	41	7.0268293	1.4312624	4.6000000	10.4000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	41	64.9512195	33.2136653	16.0000000	160.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	41	10956.73	6212.63	1070.00	27978.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	41	65.9512195	78.0019074	0	496.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	41	11022.63	6221.08	1070.00	28038.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	36	22.6166667	17.9253133	0	82.1000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	40	105.6250000	26.7827801	50.0000000	153.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	41	334.8536585	423.0896809	0	2650.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	41	4.7048780	4.2750410	0.5000000	18.3000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	41	164.0975610	93.1428486	48.0000000	448.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	41	1.7219512	1.8273632	0.1000000	8.1000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	41	5.0853659	3.8507506	0.3000000	20.8000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	41	3.1073171	2.5730711	0	14.4000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	41	2.5560976	4.8202722	0	21.5000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	41	21.4707317	25.7415641	0.9000000	147.8000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=12 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	140	1.6681171	0.4989587	0.3000000	2.7432000
DEPTH1	142	0.2873042	0.0614389	0.1000000	0.5000000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	140	9.4340771	4.5518579	1.4000000	21.4000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	140	7.3421429	2.0757964	2.8000000	16.5000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	142	26.0591549	20.3507267	3.5000000	93.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	141	11006.26	5517.32	1454.00	28410.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	141	35.7872340	33.3414818	0	270.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	141	11036.41	5529.34	1476.00	28426.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	134	22.5241791	23.3913850	1.3000000	173.0000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	141	105.2765957	26.5849330	43.0000000	176.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	140	437.6142857	331.0591806	0	1806.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	140	3.6712857	5.6202689	0	43.8000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	142	145.8309859	63.5335363	16.0000000	312.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	138	0.6093478	0.8453248	0	8.4900000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	138	4.5241304	4.0281286	0.3000000	26.7800000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	141	1.7572340	1.9217448	0	13.2000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	141	4.3598582	10.6802115	0	104.9000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	138	115.8050725	95.5728388	0	663.7900000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=13 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	185	1.5127697	0.3884531	0.3000000	2.9000000
DEPTH1	185	0.3027222	0.1564683	0.1000000	2.3000000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	183	8.5601224	4.7341381	0.6000000	22.7000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	184	7.3149457	2.1071326	2.8000000	15.9000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	179	25.0078212	22.9806647	3.0000000	157.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	184	9762.78	5490.18	508.0000000	25814.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	184	36.9402174	34.4494833	0	252.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	184	9799.73	5488.83	570.0000000	25836.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	176	17.5555114	14.5613134	0	84.9000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	184	93.8260870	21.1448859	52.0000000	160.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	183	480.9617486	404.7816039	5.0000000	2541.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	182	3.2812088	4.1497003	0	24.5000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	185	124.5297297	64.3799897	16.0000000	344.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	181	0.7277901	0.7431140	0	4.7000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	181	4.8188950	4.0563092	0	21.5000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	183	1.5908743	1.5296510	0	11.1000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	183	4.0697814	7.3594075	0	41.2400000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	182	98.6566484	72.2408467	0	384.6200000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=14 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	205	1.9200371	0.3611640	0.7000000	3.0000000
DEPTH1	206	0.2930718	0.1167407	0	1.1000000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	203	3.6678803	4.0065233	0.1000000	18.4000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	205	8.1760976	1.6196902	3.9000000	13.7000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	199	39.5743719	39.6647325	1.6000000	200.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	205	4070.87	4413.70	204.0000000	20928.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	205	50.6048780	97.7802407	0	1210.00
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	205	4121.42	4412.85	204.0000000	20998.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	197	9.7824365	7.6666641	0	43.3000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	203	65.9408867	15.3001797	28.0000000	107.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	203	213.3054187	245.0490663	0	1588.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	206	4.2995631	6.6110965	0	66.6000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	206	69.1019417	67.7936201	4.0000000	607.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	206	1.7910680	1.7282073	0	17.7000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	202	5.4384158	3.9353784	0	29.7000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	204	2.2853431	1.4333424	0.2000000	11.5000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	204	12.3979902	16.1108543	0	94.2000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	200	78.4810000	52.4730637	0	273.7000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=15 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	204	1.8184471	0.3232151	0.8000000	3.9624000
DEPTH1	207	0.3010995	0.1368151	0	1.2000000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	206	3.3366524	2.9005165	0.2000000	15.0000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	206	7.7143204	1.8667831	1.5000000	16.7000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	200	32.0950000	30.2467686	1.1000000	137.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	207	3700.24	3174.30	198.0000000	15910.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	207	35.9855072	31.9177460	0	166.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	207	3736.22	3171.94	230.0000000	15920.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	201	15.6681592	11.9189070	0	84.1000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	205	78.2146341	16.7414825	34.0000000	140.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	204	176.2990196	180.7055788	0	1055.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	206	3.2227184	4.5265902	0	32.3000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	207	68.6666667	55.6169283	8.0000000	348.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	207	1.2884541	1.3048905	0	7.6000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	203	5.2719212	3.8364773	0	29.5400000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	206	2.0036408	1.5793725	0.3000000	13.8000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	206	6.7481553	10.9386633	0	63.6000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	204	94.2977451	62.2837004	0	336.4600000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=16 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	88	2.2578545	0.3936844	0.9144000	3.0480000
DEPTH1	88	0.3047455	0.000511682	0.3000000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	85	1.8694118	2.1464824	0	12.0000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	88	6.9409091	2.2522855	0.5000000	13.1000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	87	88.9540230	61.1933474	16.0000000	280.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	85	2106.61	2311.57	170.0000000	12930.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	85	88.6117647	71.0539859	0	340.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	85	2195.22	2299.11	264.0000000	12970.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	80	23.7800000	16.6121840	0	84.5000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	85	85.6117647	19.3846368	36.0000000	124.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	86	61.6046512	90.7372780	0	635.0000000
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	87	8.0632184	12.0377711	0	82.3000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	86	69.5930233	60.8309863	12.0000000	328.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	87	3.4252874	3.8803985	0	22.8000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	85	6.1929412	4.6682001	0.3000000	23.0000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	86	4.1558140	2.7332637	0.7000000	13.6000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	86	22.3453488	51.3376497	0	371.5000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	85	65.5258824	51.2767263	1.8000000	191.1000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=17 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	44	1.5724909	0.3008272	1.2192000	2.4384000
DEPTH1	44	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	42	1.9571429	1.8156693	0	7.6000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	43	8.3023256	1.7315680	5.6000000	16.7000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	44	78.7272727	37.8978822	20.0000000	168.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	42	2391.81	2497.80	208.0000000	12288.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	42	56.5714286	43.1091314	0	196.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	43	2434.56	2463.47	250.0000000	12354.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	36	18.5416667	14.4131958	0	61.4000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	43	60.9069767	15.1654588	32.0000000	106.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	43	52.9534884	76.8374764	0	350.0000000
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	44	7.7568182	11.3289585	0.1000000	54.3000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	43	64.0930233	43.4554035	20.0000000	224.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	44	2.5181818	2.2074159	0.3000000	7.8000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	44	5.0250000	3.1020717	0.8000000	12.8000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	44	3.7454545	1.8747347	0.7000000	11.0000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	42	6.5380952	7.9031933	0	35.7000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	43	21.0511628	17.1471138	0	67.9000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=18 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	200	3.2910500	0.7363222	1.0000000	6.0960000
DEPTH1	201	0.2977552	0.1646600	0	1.9000000
DEPTH2	0	.	.	.	.
DEPTH3	175	3.2872663	0.7000504	1.3000000	5.7912000
SAL1	199	0.9354482	1.4344275	0	8.5000000
SAL2	0	.	.	.	.
SAL3	172	1.1364140	1.6946914	0.0700000	9.2000000
OXYGEN1	199	6.7015075	1.8774238	1.0000000	15.9000000
OXYGEN2	0	.	.	.	.
OXYGEN3	173	6.4144509	1.8620348	1.1000000	13.8000000
TURBID1	194	64.1262887	47.4735899	9.5000000	335.0000000
TURBID2	0	.	.	.	.
TURBID3	167	64.0622754	41.6404802	5.4000000	280.0000000
TDS1	198	1179.21	1877.95	26.0000000	13080.00
TDS2	0	.	.	.	.
TDS3	172	1484.98	2253.80	20.0000000	11716.00
SS1	198	70.6363636	69.7372086	0	730.0000000
SS2	0	.	.	.	.
SS3	172	93.7616279	92.1879350	6.0000000	800.0000000
TS1	200	1488.44	3270.35	140.0000000	37610.00
TS2	0	.	.	.	.
TS3	172	1578.72	2243.64	142.0000000	11882.00
CHLOR_A1	186	13.0511828	9.2719439	0	78.8000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	9	12.0111111	8.2674731	0	27.2000000
ALK1	199	76.8994975	16.4282938	0	120.0000000
ALK2	0	.	.	.	.
ALK3	173	76.2023121	15.6632289	2.0000000	120.0000000
SULFATE1	198	139.5000000	337.2800242	0	4440.00
SULFATE2	0	.	.	.	.
SULFATE3	171	130.3742690	109.2010032	0	609.0000000
AMMONIA1	201	5.2747761	5.5962316	0	44.1000000
AMMONIA2	0	.	.	.	.
AMMONIA3	173	5.8917341	6.2947158	0	46.4000000
CALCIUM1	201	43.3830846	37.9912821	2.0000000	368.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	174	44.3620690	36.1392770	3.0000000	340.0000000
PHOSPHA1	201	2.6364179	2.1699715	0.3000000	13.3000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	174	2.3613218	1.4062680	0	8.8000000
T_PHOS1	198	7.3040404	5.2191676	0	35.5200000
T_PHOS2	0	.	.	.	.
T_PHOS3	172	8.2611628	5.3742907	0	34.4500000
SILICA1	199	3.3607538	2.2872117	0.2000000	21.5000000
SILICA2	0	.	.	.	.
SILICA3	172	2.9491860	1.6498394	0.3000000	10.1000000
NO3NO2_1	199	18.9303015	17.3221807	0	153.9000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	171	20.7233333	18.2347561	0	149.9000000
TKN1	198	80.0783333	55.9918412	0	342.9800000
TKN2	0	.	.	.	.
TKN3	171	93.4897661	55.3524625	0.7000000	311.1100000

----- STATION=19 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	44	1.9050000	0.3021302	1.2192000	2.4384000
DEPTH1	44	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	1	1.5240000	.	1.5240000	1.5240000
SAL1	42	1.9452381	1.7448464	0	5.8000000
SAL2	0	.	.	.	.
SAL3	1	1.6000000	.	1.6000000	1.6000000
OXYGEN1	42	8.6261905	2.5617315	6.1000000	20.0000000
OXYGEN2	0	.	.	.	.
OXYGEN3	1	8.4000000	.	8.4000000	8.4000000
TURBID1	43	71.3720930	34.4487357	22.0000000	175.0000000
TURBID2	0	.	.	.	.
TURBID3	1	44.0000000	.	44.0000000	44.0000000
TDS1	43	2522.05	3478.02	218.0000000	21866.00
TDS2	0	.	.	.	.
TDS3	1	1494.00	.	1494.00	1494.00
SS1	43	60.3720930	59.9686518	0	216.0000000
SS2	0	.	.	.	.
SS3	1	10.0000000	.	10.0000000	10.0000000
TS1	43	2582.19	3478.64	288.0000000	21906.00
TS2	0	.	.	.	.
TS3	1	1504.00	.	1504.00	1504.00
CHLOR_A1	40	16.3750000	13.5176001	0	53.4000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	43	58.4418605	22.1824709	4.0000000	140.0000000
ALK2	0	.	.	.	.
ALK3	1	72.0000000	.	72.0000000	72.0000000
SULFATE1	43	60.3720930	160.1103821	0	950.0000000
SULFATE2	0	.	.	.	.
SULFATE3	1	65.0000000	.	65.0000000	65.0000000
AMMONIA1	43	6.3255814	9.2418070	0.3000000	47.6000000
AMMONIA2	0	.	.	.	.
AMMONIA3	1	3.6000000	.	3.6000000	3.6000000
CALCIUM1	43	79.3488372	147.8710641	16.0000000	960.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	1	36.0000000	.	36.0000000	36.0000000
PHOSPHA1	43	2.6534884	2.1963551	0.3000000	9.5000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	1	0.4000000	.	0.4000000	0.4000000
T_PHOS1	43	5.5302326	3.8726474	0.7000000	20.2000000
T_PHOS2	0	.	.	.	.
T_PHOS3	1	1.8000000	.	1.8000000	1.8000000
SILICA1	43	3.8488372	2.5869059	0.1000000	14.4000000
SILICA2	0	.	.	.	.
SILICA3	1	6.2000000	.	6.2000000	6.2000000
NO3NO2_1	43	6.9511628	8.6055179	0	38.3000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	1	0.3000000	.	0.3000000	0.3000000
TKN1	42	20.1000000	16.5763422	0	73.8000000
TKN2	0	.	.	.	.
TKN3	1	12.2000000	.	12.2000000	12.2000000

----- STATION=20 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	2	2.7432000	0.4310523	2.4384000	3.0480000
DEPTH1	2	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	2	0.5000000	0	0.5000000	0.5000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	2	7.4500000	0.6363961	7.0000000	7.9000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	2	160.0000000	56.5685425	120.0000000	200.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	2	635.0000000	46.6690476	602.0000000	668.0000000
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	2	136.0000000	110.3086579	58.0000000	214.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	2	771.0000000	63.6396103	726.0000000	816.0000000
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	2	24.4500000	27.7892965	4.8000000	44.1000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	2	61.0000000	1.4142136	60.0000000	62.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	2	0	0	0	0
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	2	1.4000000	1.9798990	0	2.8000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	2	40.0000000	0	40.0000000	40.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	2	1.3500000	1.4849242	0.3000000	2.4000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	2	2.6000000	1.9798990	1.2000000	4.0000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	2	1.1000000	0	1.1000000	1.1000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	2	4.4000000	1.2727922	3.5000000	5.3000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	2	9.5000000	0.9899495	8.8000000	10.2000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=21 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	198	7.8722828	0.7826754	4.5720000	10.9728000
DEPTH1	200	0.4262200	0.3821867	0.1000000	2.6000000
DEPTH2	0	.	.	.	.
DEPTH3	199	7.8372945	0.9389119	0.6096000	10.9728000
SAL1	191	26.0052225	5.1870977	9.9600000	37.1000000
SAL2	0	.	.	.	.
SAL3	189	29.4898397	3.6342954	19.3000000	36.2000000
OXYGEN1	197	7.9939086	2.0020050	1.4000000	15.7000000
OXYGEN2	0	.	.	.	.
OXYGEN3	190	5.7657895	2.7189397	0	11.6000000
TURBID1	190	8.8202632	9.9615100	0.3400000	65.0000000
TURBID2	0	.	.	.	.
TURBID3	187	16.5501070	19.0689597	0	171.0000000
TDS1	198	29536.32	6998.99	10576.00	63120.00
TDS2	0	.	.	.	.
TDS3	195	33331.64	6025.69	12654.00	62060.00
SS1	198	33.3989899	53.9569992	0	646.0000000
SS2	0	.	.	.	.
SS3	195	47.6512821	60.6567275	0	660.0000000
TS1	200	29554.59	7010.57	10634.00	63122.00
TS2	0	.	.	.	.
TS3	197	33391.30	6008.32	12736.00	62118.00
CHLOR_A1	190	8.1533021	11.9352208	0	110.1000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	167	4.5526946	5.2832905	0	44.5500000
ALK1	199	110.8391960	11.5860536	56.0000000	138.0000000
ALK2	0	.	.	.	.
ALK3	196	115.1479592	7.8199971	88.0000000	142.0000000
SULFATE1	198	1628.55	693.9259425	0	3719.00
SULFATE2	0	.	.	.	.
SULFATE3	194	1885.79	688.5652567	355.0000000	3847.00
AMMONIA1	198	2.5515657	3.4455283	0	25.2000000
AMMONIA2	0	.	.	.	.
AMMONIA3	196	4.9528061	6.2712667	0	40.3000000
CALCIUM1	200	302.4650000	92.0794325	16.0000000	984.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	197	330.3959391	83.5746372	12.0000000	696.0000000
PHOSPHA1	196	0.5553061	0.5756944	0	4.3000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	194	1.0074227	1.2242543	0	9.2000000
T_PHOS1	197	3.0592386	3.5091360	0	26.9100000
T_PHOS2	0	.	.	.	.
T_PHOS3	195	3.7428718	4.2249570	0	38.9000000
SILICA1	200	0.6572500	1.4703799	0	15.8000000
SILICA2	0	.	.	.	.
SILICA3	197	0.7790355	1.4197868	0	13.1000000
NO3NO2_1	199	5.9321608	9.6006500	0	74.4000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	196	5.7825000	7.2762834	0	58.4200000
TKN1	194	44.6630412	38.6104390	0	166.9600000
TKN2	0	.	.	.	.
TKN3	192	46.4911979	42.1960745	0	197.9700000

----- STATION=22 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	215	10.5277786	0.9514242	6.0960000	12.1000000
DEPTH1	215	0.4028651	0.2976462	0.1000000	2.1000000
DEPTH2	1	9.7000000	.	9.7000000	9.7000000
DEPTH3	215	10.5290009	0.9508360	6.0960000	12.1000000
SAL1	211	26.0383417	5.3189316	11.4000000	35.4800000
SAL2	1	32.2399999	.	32.2399999	32.2399999
SAL3	205	30.6730473	3.5198077	15.0000000	38.2000000
OXYGEN1	212	8.2820755	2.1061542	2.3000000	16.6000000
OXYGEN2	1	0.5000000	.	0.5000000	0.5000000
OXYGEN3	210	5.3623810	3.0623136	0	12.5000000
TURBID1	205	7.8797561	9.8305112	0	61.0000000
TURBID2	1	5.6000000	.	5.6000000	5.6000000
TURBID3	203	13.4059606	14.5589078	0	76.0000000
TDS1	212	29252.44	6994.09	7950.00	61956.00
TDS2	1	36322.00	.	36322.00	36322.00
TDS3	211	34676.77	5295.15	7334.00	61162.00
SS1	213	35.0234742	50.4625250	0	582.0000000
SS2	1	8.0000000	.	8.0000000	8.0000000
SS3	212	46.0896226	70.4248212	0	884.0000000
TS1	214	29317.04	6977.62	8056.00	61982.00
TS2	1	36330.00	.	36330.00	36330.00
TS3	212	34740.89	5284.87	7388.00	61228.00
CHLOR_A1	207	8.3415459	12.4438086	0	121.5000000
CHLOR_A2	1	5.2800000	.	5.2800000	5.2800000
CHLOR_A3	166	3.8257831	3.9799722	0	22.9000000
ALK1	215	111.5581395	13.9640766	1.0000000	150.0000000
ALK2	1	130.0000000	.	130.0000000	130.0000000
ALK3	209	115.3588517	10.3091833	52.0000000	148.0000000
SULFATE1	214	1620.16	685.2293287	225.0000000	3837.00
SULFATE2	0	.	.	.	.
SULFATE3	212	1927.95	716.8775551	225.0000000	3881.00
AMMONIA1	212	2.0308491	2.4698008	0	24.5000000
AMMONIA2	1	12.5500000	.	12.5500000	12.5500000
AMMONIA3	212	5.4245755	7.7638244	0	52.4000000
CALCIUM1	215	300.9302326	83.1754691	32.0000000	664.0000000
CALCIUM2	1	392.0000000	.	392.0000000	392.0000000
CALCIUM3	213	347.2863850	83.8440694	8.0000000	728.0000000
PHOSPHA1	212	0.5541981	0.8366769	0	8.4000000
PHOSPHA2	1	3.7700000	.	3.7700000	3.7700000
PHOSPHA3	211	1.2261611	1.6677059	0	12.4000000
T_PHOS1	212	2.7953774	3.0772101	0	25.2300000
T_PHOS2	1	9.8600000	.	9.8600000	9.8600000
T_PHOS3	211	3.7814692	4.4363338	0	30.2000000
SILICA1	214	0.5894393	1.3619296	0	17.8000000
SILICA2	1	1.3400000	.	1.3400000	1.3400000
SILICA3	213	0.7984038	1.0794077	0	10.4000000
NO3NO2_1	211	6.3846919	10.7343869	0	81.2000000
NO3NO2_2	1	1.5000000	.	1.5000000	1.5000000
NO3NO2_3	212	5.3408491	6.3834842	0	32.1000000
TKN1	208	41.1103846	38.1558326	0	179.5300000
TKN2	1	151.1600000	.	151.1600000	151.1600000
TKN3	207	40.7352657	38.7900579	0	217.5200000

----- STATION=23 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	1	3.0480000	.	3.0480000	3.0480000
DEPTH1	1	0.3048000	.	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	1	17.0000000	.	17.0000000	17.0000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	1	8.8000000	.	8.8000000	8.8000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	1	16.0000000	.	16.0000000	16.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	1	18538.00	.	18538.00	18538.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	1	28.0000000	.	28.0000000	28.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	1	18566.00	.	18566.00	18566.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	1	15.3000000	.	15.3000000	15.3000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	1	104.0000000	.	104.0000000	104.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	1	800.0000000	.	800.0000000	800.0000000
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	1	1.6000000	.	1.6000000	1.6000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	1	108.0000000	.	108.0000000	108.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	1	0	.	0	0
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	1	0.8000000	.	0.8000000	0.8000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	1	1.3000000	.	1.3000000	1.3000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	1	0	.	0	0
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	1	3.3000000	.	3.3000000	3.3000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=24 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	15	1.4224000	0.4411961	0.6096000	2.4384000
DEPTH1	15	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	15	0.3200000	0.2833473	0	1.0000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	15	4.8800000	2.7300445	0.8000000	9.8000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	15	55.4666667	23.9936500	22.0000000	104.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	15	453.8666667	426.1304070	124.0000000	1742.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	15	44.1333333	38.4965057	0	128.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	15	498.2666667	422.4918371	136.0000000	1762.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	10	35.7200000	34.2617636	0.9000000	111.5000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	14	74.3571429	22.9300178	36.0000000	118.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	15	270.1333333	445.2013777	0	1305.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	15	4.2733333	4.7000709	0.2000000	18.0000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	15	43.7333333	26.5960971	4.0000000	96.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	15	3.9733333	3.0853263	0.6000000	11.8000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	15	7.6800000	4.7766097	1.1000000	16.3000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	15	6.9133333	3.9944366	0.3000000	12.4000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	15	3.4200000	3.7048617	0	13.0000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	15	20.2733333	15.8370933	1.2000000	63.4000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=25 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	15	2.1336000	0.5874253	0.6096000	2.7432000
DEPTH1	15	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	15	0.2733333	0.3058166	0	1.1000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	15	3.9333333	2.0893152	1.0000000	8.4000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	15	62.6666667	41.1055552	30.0000000	193.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	15	1603.47	5061.71	134.0000000	19886.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	15	84.9333333	71.6653599	0	250.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	15	1688.40	5091.13	210.0000000	20076.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	12	20.4000000	21.6516638	0	57.3000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	15	64.3333333	27.3147440	34.0000000	115.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	15	173.4666667	313.7519190	0	990.0000000
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	15	10.5666667	16.8399044	0.6000000	64.2000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	15	31.4666667	14.5693743	8.0000000	60.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	15	4.5800000	4.7159607	0.8000000	15.9000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	15	7.2800000	4.8998834	0.2000000	16.1000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	15	6.6400000	5.4934767	1.5000000	21.9000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	15	8.0733333	8.9252824	0	24.6000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	14	21.9357143	13.5717244	4.8000000	52.8000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=26 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	15	1.9507200	0.3785976	0.9144000	2.4384000
DEPTH1	15	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	15	0.2600000	0.2720294	0	0.9000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	15	3.5200000	2.4704540	0.8000000	9.8000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	15	70.8000000	38.6951455	22.0000000	175.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	15	425.3333333	392.7388567	108.0000000	1602.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	15	54.6666667	46.9690881	2.0000000	166.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	15	480.0000000	389.6723899	144.0000000	1624.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	11	25.3636364	24.1796722	3.2000000	78.5000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	14	49.5714286	10.9172713	30.0000000	72.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	15	71.8000000	125.4336478	0	375.0000000
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	15	11.1933333	13.4530648	0.4000000	41.5000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	15	28.5333333	17.4923112	0	72.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	15	5.9400000	5.5427946	0.2000000	19.7000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	15	9.1600000	5.8434090	0.8000000	19.6000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	15	6.6666667	2.7022918	2.4000000	10.9000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	15	4.6866667	6.6472193	0	20.5000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	15	23.8266667	17.8902394	1.2000000	65.4000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=27 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	15	2.4587200	0.4950627	1.2192000	3.3528000
DEPTH1	15	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	15	0.2400000	0.2898275	0	1.0000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	15	2.8866667	1.3757422	1.3000000	6.7000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	15	70.3333333	34.1544113	30.0000000	168.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	15	381.4666667	396.8147943	20.0000000	1528.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	15	46.8000000	40.6082328	0	150.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	15	428.2666667	404.4529757	22.0000000	1566.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	12	25.9250000	20.2750687	1.5000000	71.5000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	14	53.8571429	11.7594946	38.0000000	80.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	15	90.3333333	174.0429613	0	510.0000000
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	15	11.5266667	14.8947962	0.6000000	58.6000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	15	25.8666667	11.7950756	8.0000000	48.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	15	6.1800000	5.4470438	0.4000000	22.3000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	15	8.7133333	5.0747085	1.1000000	18.0000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	15	7.4933333	4.3857670	1.6000000	19.3000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	15	7.2133333	6.8186579	0	22.5000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	15	30.9933333	21.1568451	9.4000000	72.6000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=28 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	15	2.5400000	0.4842206	1.8288000	3.6576000
DEPTH1	15	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	15	0.1933333	0.2463060	0	1.0000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	15	2.9533333	1.5842378	0.5000000	5.3000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	14	95.4285714	54.3333221	36.0000000	233.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	14	373.7142857	348.2314501	98.0000000	1374.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	14	60.1428571	50.1165674	2.0000000	156.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	14	433.8571429	384.5960633	108.0000000	1512.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	13	20.5846154	17.9748364	0.9000000	70.0000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	14	54.4285714	10.9031702	30.0000000	72.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	15	105.6666667	213.0548778	0	665.0000000
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	15	15.8600000	20.3402416	0.6000000	67.0000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	15	40.0000000	31.7129987	4.0000000	96.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	15	6.8866667	5.1538982	0.4000000	17.9000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	15	12.9066667	11.9576913	1.0000000	46.1000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	15	8.2266667	3.1797275	2.6000000	14.1000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	15	7.8866667	7.2472524	0	19.9000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	15	35.2933333	21.0169818	6.9000000	78.6000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=29 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	15	1.9100800	0.4530690	0.9144000	2.4384000
DEPTH1	15	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	15	0.1733333	0.1751190	0	0.6000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	15	2.2800000	1.3470603	0.3000000	5.1000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	15	111.2000000	79.3763189	26.0000000	310.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	14	358.2857143	351.9028337	22.0000000	1460.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	14	93.0000000	75.0415270	14.0000000	262.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	14	451.2857143	393.1401059	56.0000000	1638.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	13	14.1000000	17.2321889	0.7000000	66.2000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	14	52.7857143	11.7746702	40.0000000	74.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	15	110.6000000	224.0273580	0	735.0000000
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	15	14.4600000	17.8460000	0.1000000	63.9000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	15	21.8666667	10.6761862	0	44.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	15	6.3466667	4.1223895	0.5000000	16.3000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	15	11.7866667	9.6363054	1.5000000	36.1000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	15	8.2400000	2.4543838	2.7000000	13.3000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	15	8.5866667	8.0796806	0	31.6000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	15	31.3466667	20.7069646	7.0000000	78.4000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=30 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	15	2.1132800	0.8656892	0.9144000	3.3528000
DEPTH1	15	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	15	0.3200000	0.5059644	0	2.0000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	15	2.6666667	1.4931590	0.5000000	5.6000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	14	99.5714286	47.3444242	42.0000000	206.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	15	326.0000000	245.3184519	72.0000000	1102.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	15	65.7333333	63.2675347	14.0000000	270.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	15	394.4000000	262.7287575	122.0000000	1134.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	11	13.9727273	8.1273724	3.0000000	28.1000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	15	71.0000000	29.7825452	28.0000000	138.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	15	98.1333333	237.9108076	0	825.0000000
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	15	10.4666667	7.4167442	0.5000000	24.5000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	15	33.2000000	11.8031473	20.0000000	64.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	15	9.5533333	7.4609332	0.6000000	28.9000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	15	12.9666667	9.6251654	3.1000000	37.7000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	15	9.8266667	3.4345860	2.7000000	16.6000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	15	13.8733333	16.1472451	1.1000000	57.9000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	15	30.3400000	20.9474103	6.5000000	67.7000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=31 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	41	3.2933268	0.6856967	2.4384000	6.0960000
DEPTH1	41	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	37	25.5810811	6.0011035	11.0000000	35.1000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	41	8.4390244	2.8257634	2.3000000	15.5000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	41	25.1219512	19.3651686	0	104.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	41	28675.56	7966.57	12112.00	45532.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	41	121.2195122	332.0839888	0	2120.00
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	41	28796.78	7985.12	12164.00	45552.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	36	11.1861111	14.5205500	0.6000000	64.6000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	40	105.4250000	12.9889253	75.0000000	129.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	41	994.5121951	408.3137349	225.0000000	2150.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	41	3.8731707	3.2156667	0.2000000	14.5000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	41	273.5365854	125.4846799	8.0000000	560.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	41	1.2195122	1.9405179	0.1000000	10.2000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	41	2.5243902	2.5233688	0	12.8000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	41	1.7439024	2.7159758	0.1000000	15.3000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	41	1.3219512	2.0233033	0	6.0000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	41	9.7170732	11.0583657	0	63.6000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=33 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	35	2.7606171	0.6313670	1.5240000	4.5720000
DEPTH1	35	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	32	23.5968750	4.4850637	13.1000000	30.9000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	33	7.7000000	1.7018372	3.5000000	11.1000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	35	32.2571429	16.8842824	0	92.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	35	24857.14	6286.94	13060.00	34504.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	35	73.2000000	89.9087119	0	534.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	35	24930.34	6270.71	13122.00	34538.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	33	13.6242424	9.7628451	0	43.8000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	35	114.0285714	23.2549624	66.0000000	152.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	35	837.6571429	278.2015713	295.0000000	1273.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	35	4.8828571	6.8929412	0	35.3000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	35	271.6571429	100.1334236	36.0000000	504.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	35	0.9314286	0.6008677	0.1000000	2.6000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	35	3.5600000	2.2092320	0	9.4000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	35	1.6628571	1.6333088	0	9.3000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	35	1.2771429	2.1018319	0	9.0000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	35	13.6114286	11.9740595	0	43.8000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=34 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	194	1.7628021	0.4634249	0.2000000	3.6576000
DEPTH1	198	0.2900000	0.0751869	0.1000000	0.6000000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	196	24.1713240	4.3612140	8.3000000	33.3000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	196	7.0862245	1.8913200	1.4000000	11.5000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	190	24.2515789	22.5295590	0	150.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	196	27352.60	6463.17	2390.00	47212.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	197	56.8020305	47.7996072	0	354.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	196	27409.42	6459.94	2418.00	47264.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	192	15.3237500	13.2357583	0.8500000	106.5000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	198	116.8686869	18.1063673	29.0000000	164.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	196	1489.15	630.5543487	174.0000000	3255.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	196	7.5652551	7.9549540	0	46.8000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	198	284.5808081	67.9839563	8.0000000	600.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	196	0.7332143	0.5923819	0	3.8000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	195	5.2082051	3.8010695	0.4000000	26.7399999
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	197	0.9439086	1.4042659	0	17.9000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	196	3.7714286	6.8269386	0	42.0000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	195	86.3854872	64.1996702	0	377.4400000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=35 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	185	10.5292865	0.4783310	7.6200000	12.2000000
DEPTH1	186	0.4331828	0.3623797	0	2.4000000
DEPTH2	0	.	.	.	.
DEPTH3	186	10.5207849	0.4920220	7.6200000	12.2000000
SAL1	185	26.0606351	5.0882087	11.9400000	35.2000000
SAL2	0	.	.	.	.
SAL3	186	30.8127075	3.3513990	19.1000000	36.2000000
OXYGEN1	181	8.2276243	1.9479646	0.3000000	15.2000000
OXYGEN2	0	.	.	.	.
OXYGEN3	183	5.1174863	2.9826827	0	13.0000000
TURBID1	176	6.2918182	7.7846221	0	49.0000000
TURBID2	0	.	.	.	.
TURBID3	176	12.2325000	13.3297700	0.2200000	99.0000000
TDS1	185	29849.78	6902.79	13660.00	56852.00
TDS2	0	.	.	.	.
TDS3	182	34800.40	5659.57	12688.00	62816.00
SS1	185	28.7621622	34.1064140	0	254.0000000
SS2	0	.	.	.	.
SS3	182	38.0714286	36.0904382	0	232.0000000
TS1	186	29913.32	6908.73	13670.00	57106.00
TS2	0	.	.	.	.
TS3	186	36648.57	26040.18	12728.00	381400.00
CHLOR_A1	182	7.8804396	11.6614891	0	101.0000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	171	3.5741520	3.3249514	0	20.9000000
ALK1	186	112.9462366	12.0003294	10.0000000	156.0000000
ALK2	0	.	.	.	.
ALK3	185	116.9459459	7.7996166	93.0000000	150.0000000
SULFATE1	185	1729.77	647.7414566	410.0000000	3598.00
SULFATE2	0	.	.	.	.
SULFATE3	185	2064.99	654.4377108	850.0000000	3728.00
AMMONIA1	185	2.2208108	3.0189456	0	25.1000000
AMMONIA2	0	.	.	.	.
AMMONIA3	185	5.7442703	7.9357842	0.1000000	48.7000000
CALCIUM1	186	307.0376344	58.9578290	72.0000000	528.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	186	355.7795699	56.0844904	100.0000000	600.0000000
PHOSPHA1	184	0.5073370	0.8203558	0	9.6000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	184	1.1651630	1.4965253	0	8.2000000
T_PHOS1	184	3.1884239	3.3154713	0	23.9000000
T_PHOS2	0	.	.	.	.
T_PHOS3	184	4.3107065	4.4519114	0	29.5000000
SILICA1	186	0.4251075	0.4868001	0	4.4000000
SILICA2	0	.	.	.	.
SILICA3	186	0.6412366	0.6437307	0	3.4200000
NO3NO2_1	185	6.8687027	10.8427142	0	79.6000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	185	5.6995135	6.8755521	0	41.0000000
TKN1	181	46.6379006	37.9640116	0	156.8100000
TKN2	0	.	.	.	.
TKN3	180	48.9769444	44.9108545	0	260.8600000

----- STATION=36 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	187	10.8847850	0.3812875	7.6200000	12.2000000
DEPTH1	187	0.4373091	0.3371097	0.1000000	2.4000000
DEPTH2	0	.	.	.	.
DEPTH3	186	10.8828602	0.3825064	7.6200000	12.2000000
SAL1	181	26.1633475	5.1503085	11.5000000	34.9000000
SAL2	0	.	.	.	.
SAL3	180	31.1562728	3.2762105	19.1000000	37.8000000
OXYGEN1	180	8.4166667	1.9769764	3.1000000	15.8000000
OXYGEN2	0	.	.	.	.
OXYGEN3	179	5.1374302	3.0147383	0	12.2000000
TURBID1	172	5.7837791	7.3127415	0	40.0000000
TURBID2	0	.	.	.	.
TURBID3	171	12.1185380	13.8382560	0	64.0000000
TDS1	181	29827.60	7231.50	4974.00	60410.00
TDS2	0	.	.	.	.
TDS3	179	35317.66	5976.68	12586.00	69772.00
SS1	181	28.6022099	33.3577710	0	196.0000000
SS2	0	.	.	.	.
SS3	179	39.4078212	42.4272827	0	248.0000000
TS1	182	29887.52	7225.15	5068.00	60454.00
TS2	0	.	.	.	.
TS3	180	35369.83	5961.05	12666.00	69866.00
CHLOR_A1	178	7.5825281	12.1874021	0	109.4000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	172	3.7739535	3.5977263	0	24.9000000
ALK1	182	113.7857143	8.4378268	88.0000000	150.0000000
ALK2	0	.	.	.	.
ALK3	181	117.3038674	10.5457436	66.0000000	206.0000000
SULFATE1	180	1753.57	656.2924732	445.0000000	3445.00
SULFATE2	0	.	.	.	.
SULFATE3	180	2102.97	645.1306559	765.0000000	3641.00
AMMONIA1	181	2.1328729	3.6238735	0	31.0000000
AMMONIA2	0	.	.	.	.
AMMONIA3	180	5.5704444	7.9283665	0	44.9000000
CALCIUM1	182	310.9670330	76.6335112	72.0000000	960.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	181	358.0331492	56.7765504	112.0000000	656.0000000
PHOSPHA1	180	0.4221667	0.4969553	0	4.5000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	179	1.1520112	1.4962040	0	7.5000000
T_PHOS1	180	2.9921667	3.1207040	0	21.3000000
T_PHOS2	0	.	.	.	.
T_PHOS3	179	4.1296089	4.4808086	0	29.5000000
SILICA1	182	0.3675824	0.3908550	0	2.2000000
SILICA2	0	.	.	.	.
SILICA3	181	0.6174586	0.6526971	0	3.4700000
NO3NO2_1	181	6.5883425	10.4213190	0	72.0000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	180	5.6670556	6.6926090	0	34.2000000
TKN1	178	46.2338202	37.9926905	0	162.1000000
TKN2	0	.	.	.	.
TKN3	177	48.7769492	42.2712566	0	209.9400000

----- STATION=37 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	187	3.2217604	1.9597463	1.1000000	27.0000000
DEPTH1	188	0.3342638	0.1940307	0	2.0000000
DEPTH2	0	.	.	.	.
DEPTH3	187	3.2054503	1.9667876	1.1000000	27.0000000
SAL1	185	24.5991459	4.2133121	12.4800000	33.9000000
SAL2	0	.	.	.	.
SAL3	182	24.9521445	4.1273677	12.3000000	33.9000000
OXYGEN1	185	7.0908108	1.7132704	1.4000000	12.8000000
OXYGEN2	0	.	.	.	.
OXYGEN3	182	6.8109890	1.8669531	1.3000000	14.3000000
TURBID1	178	26.9011236	19.2826698	2.0000000	110.0000000
TURBID2	0	.	.	.	.
TURBID3	176	30.8681818	21.5305792	4.0000000	140.0000000
TDS1	185	27512.21	5351.83	8034.00	54242.00
TDS2	0	.	.	.	.
TDS3	183	27868.57	5117.68	14366.00	47116.00
SS1	185	59.9405405	43.5261257	3.0000000	286.0000000
SS2	0	.	.	.	.
SS3	183	74.0163934	57.4207026	2.0000000	362.0000000
TS1	186	27554.54	5343.42	8086.00	54314.00
TS2	0	.	.	.	.
TS3	185	27898.55	5118.35	14390.00	47192.00
CHLOR_A1	184	11.3762500	7.5686643	0.5000000	56.5600000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	160	11.1118125	8.7566721	0	70.4000000
ALK1	187	114.2513369	10.0603521	82.0000000	142.0000000
ALK2	0	.	.	.	.
ALK3	186	114.6290323	10.0182005	74.0000000	142.0000000
SULFATE1	187	1625.79	603.0015400	350.0000000	3536.00
SULFATE2	0	.	.	.	.
SULFATE3	185	1653.74	600.1746283	380.0000000	3538.00
AMMONIA1	187	4.1196791	3.9558188	0	24.5000000
AMMONIA2	0	.	.	.	.
AMMONIA3	185	4.7681622	4.8608855	0	25.3300000
CALCIUM1	188	290.9148936	53.8797750	160.0000000	528.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	186	297.4731183	76.6583281	172.0000000	1040.00
PHOSPHA1	186	0.7989247	0.5287486	0	2.8000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	184	0.8574457	0.6389246	0	3.8000000
T_PHOS1	185	4.7355135	3.6761876	0	25.2700000
T_PHOS2	0	.	.	.	.
T_PHOS3	183	5.1192350	3.6645904	0	24.4800000
SILICA1	187	0.6840642	0.6734652	0	4.1000000
SILICA2	0	.	.	.	.
SILICA3	186	0.6535484	0.5804223	0	3.4000000
NO3NO2_1	188	4.3026596	7.2600553	0	58.8000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	186	4.4259677	7.2184869	0	59.0000000
TKN1	184	68.5160870	47.9297104	0	233.0800000
TKN2	0	.	.	.	.
TKN3	182	68.9481868	46.3013317	0	211.6900000

----- STATION=38 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	185	1.8504930	0.3179934	0.9000000	4.5000000
DEPTH1	188	0.2999021	0.1294429	0	1.3000000
DEPTH2	0	.	.	.	.
DEPTH3	183	1.8432109	0.3187779	0.9000000	4.5000000
SAL1	186	2.8931124	2.3429765	0	11.4000000
SAL2	0	.	.	.	.
SAL3	181	2.9891602	2.4510662	0.2000000	12.3000000
OXYGEN1	183	7.6620219	2.2522742	1.5000000	12.4000000
OXYGEN2	0	.	.	.	.
OXYGEN3	180	6.7388889	2.2528291	1.3000000	12.2000000
TURBID1	181	29.6049724	43.7612745	3.0000000	350.0000000
TURBID2	0	.	.	.	.
TURBID3	176	37.3710227	52.1967400	3.6000000	395.0000000
TDS1	188	3176.34	2726.20	330.0000000	16720.00
TDS2	0	.	.	.	.
TDS3	183	3304.74	2740.90	296.0000000	13232.00
SS1	188	34.8617021	81.0234799	0	948.0000000
SS2	0	.	.	.	.
SS3	183	51.1420765	99.7890166	0	1136.00
TS1	188	3211.57	2734.38	338.0000000	16768.00
TS2	0	.	.	.	.
TS3	183	3355.99	2748.62	324.0000000	13296.00
CHLOR_A1	178	23.8445506	13.0543260	1.0000000	68.9000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	9	13.7444444	9.9998889	0.6000000	26.8000000
ALK1	186	87.3709677	18.0140190	10.0000000	144.0000000
ALK2	0	.	.	.	.
ALK3	181	88.0220994	17.1687558	30.0000000	140.0000000
SULFATE1	184	154.8043478	134.8777013	0	660.0000000
SULFATE2	0	.	.	.	.
SULFATE3	180	162.1833333	140.0820380	0	660.0000000
AMMONIA1	187	4.4809626	8.1317391	0	68.2000000
AMMONIA2	0	.	.	.	.
AMMONIA3	183	4.7727322	8.4237658	0	74.4000000
CALCIUM1	188	63.2340426	42.1691084	16.0000000	288.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	183	63.4098361	39.7127227	16.0000000	272.0000000
PHOSPHA1	188	1.4523404	1.4066324	0	10.5000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	183	1.7018033	1.7380261	0	10.3000000
T_PHOS1	185	5.8337838	3.9936460	0.3000000	30.3000000
T_PHOS2	0	.	.	.	.
T_PHOS3	180	6.3580000	4.3452188	0	26.6000000
SILICA1	187	2.1963636	1.5532916	0.4000000	9.1000000
SILICA2	0	.	.	.	.
SILICA3	182	2.2465934	1.6097900	0.4000000	9.2000000
NO3NO2_1	187	8.0459358	21.0420033	0	170.1000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	182	8.4184066	22.0855141	0	167.3000000
TKN1	183	103.4313115	56.7649090	0.4000000	351.0700000
TKN2	0	.	.	.	.
TKN3	177	107.3753672	61.0676818	0.6000000	293.5900000

----- STATION=39 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	113	1.7043575	0.4370353	0.1000000	3.0000000
DEPTH1	116	0.2910345	0.1524411	0	1.3000000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	115	2.8870009	2.6110735	0.4700000	18.1000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	113	7.2920354	2.5497248	2.1000000	13.9000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	109	11.7798165	10.6545572	3.0000000	90.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	116	3108.34	2580.68	248.0000000	12652.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	116	20.2586207	22.2140264	0	164.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	116	3128.60	2579.51	256.0000000	12666.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	115	28.5673913	18.9059855	0.5100000	100.2000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	116	96.7844828	17.9699295	60.0000000	147.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	114	198.8070175	141.5790768	0	635.0000000
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	116	3.6566379	7.5147601	0	54.2700000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	115	62.8000000	39.3524782	16.0000000	264.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	116	2.2500000	2.1837308	0	12.0000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	115	7.9307826	5.4924685	0	35.7000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	116	2.1584483	2.1889142	0.1500000	14.2300000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	115	2.8785217	7.3730547	0	41.7000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	114	129.5182456	68.8968020	18.3000000	349.7600000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=40 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	42	1.8288000	0	1.8288000	1.8288000
DEPTH1	42	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	0	.	.	.	.
SAL1	40	10.5900000	5.2184485	1.6000000	25.4000000
SAL2	0	.	.	.	.
SAL3	0	.	.	.	.
OXYGEN1	42	6.9071429	2.0528853	3.2000000	11.5000000
OXYGEN2	0	.	.	.	.
OXYGEN3	0	.	.	.	.
TURBID1	36	19.1666667	19.0915090	5.0000000	105.0000000
TURBID2	0	.	.	.	.
TURBID3	0	.	.	.	.
TDS1	42	11920.83	5677.74	1924.00	21380.00
TDS2	0	.	.	.	.
TDS3	0	.	.	.	.
SS1	42	38.5000000	42.4190765	0	224.0000000
SS2	0	.	.	.	.
SS3	0	.	.	.	.
TS1	42	11959.33	5684.33	1930.00	21390.00
TS2	0	.	.	.	.
TS3	0	.	.	.	.
CHLOR_A1	41	16.5975610	11.1122340	4.3000000	50.7000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	42	101.8333333	19.9314883	58.0000000	134.0000000
ALK2	0	.	.	.	.
ALK3	0	.	.	.	.
SULFATE1	42	672.5238095	381.9496352	136.0000000	1529.00
SULFATE2	0	.	.	.	.
SULFATE3	0	.	.	.	.
AMMONIA1	41	3.3000000	4.6257432	0	22.2000000
AMMONIA2	0	.	.	.	.
AMMONIA3	0	.	.	.	.
CALCIUM1	42	137.4761905	60.9406901	20.0000000	272.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	0	.	.	.	.
PHOSPHA1	42	0.6619048	0.6521830	0.1000000	3.1000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	0	.	.	.	.
T_PHOS1	42	6.6190476	6.0604370	0.4000000	32.4000000
T_PHOS2	0	.	.	.	.
T_PHOS3	0	.	.	.	.
SILICA1	38	1.0368421	0.6231659	0.1000000	2.5000000
SILICA2	0	.	.	.	.
SILICA3	0	.	.	.	.
NO3NO2_1	41	3.5195122	5.5649447	0	21.9000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	0	.	.	.	.
TKN1	42	81.9642857	46.7083417	1.5000000	233.7000000
TKN2	0	.	.	.	.
TKN3	0	.	.	.	.

----- STATION=50 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	4	36.7284000	0.3048000	36.5760000	37.1856000
DEPTH1	4	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	4	36.7284000	0.3048000	36.5760000	37.1856000
SAL1	4	29.9250000	1.1116804	28.7000000	31.4000000
SAL2	0	.	.	.	.
SAL3	4	35.4750000	0.5500000	35.2000000	36.3000000
OXYGEN1	4	8.4750000	1.6459546	7.0000000	10.7000000
OXYGEN2	0	.	.	.	.
OXYGEN3	4	7.2500000	1.0279429	6.4000000	8.6000000
TURBID1	4	6.0000000	7.6594169	0	16.0000000
TURBID2	0	.	.	.	.
TURBID3	4	8.0000000	7.3029674	0	16.0000000
TDS1	4	33460.50	2184.09	31350.00	35514.00
TDS2	0	.	.	.	.
TDS3	4	36143.50	5567.76	27922.00	40030.00
SS1	4	57.0000000	64.5290632	8.0000000	152.0000000
SS2	0	.	.	.	.
SS3	4	45.5000000	15.5241747	26.0000000	58.0000000
TS1	4	33509.50	2215.52	31386.00	35522.00
TS2	0	.	.	.	.
TS3	4	36189.50	5557.16	27982.00	40070.00
CHLOR_A1	3	2.5666667	1.9553346	0.4000000	4.2000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	4	119.5000000	16.4418166	110.0000000	144.0000000
ALK2	0	.	.	.	.
ALK3	4	109.0000000	16.8720676	85.0000000	124.0000000
SULFATE1	4	1186.25	276.4469509	945.0000000	1450.00
SULFATE2	0	.	.	.	.
SULFATE3	4	1451.25	332.3746631	1110.00	1900.00
AMMONIA1	4	1.8250000	1.2579746	0.1000000	3.1000000
AMMONIA2	0	.	.	.	.
AMMONIA3	4	1.4750000	0.8655441	0.7000000	2.6000000
CALCIUM1	4	249.0000000	245.1747676	48.0000000	588.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	4	204.0000000	183.8550153	56.0000000	444.0000000
PHOSPHA1	4	0.7250000	0.7135592	0	1.7000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	4	0.7750000	0.4991660	0.1000000	1.2000000
T_PHOS1	4	1.4250000	0.9569918	0.5000000	2.3000000
T_PHOS2	0	.	.	.	.
T_PHOS3	4	0.9500000	0.4795832	0.4000000	1.4000000
SILICA1	4	0.5250000	0.3403430	0.1000000	0.8000000
SILICA2	0	.	.	.	.
SILICA3	4	0.3500000	0.1290994	0.2000000	0.5000000
NO3NO2_1	4	0.5250000	1.0500000	0	2.1000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	4	1.5750000	3.1500000	0	6.3000000
TKN1	4	7.9750000	3.3925163	3.7000000	12.0000000
TKN2	0	.	.	.	.
TKN3	4	7.6750000	3.5612498	4.3000000	10.9000000

----- STATION=51 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	3	29.6672000	3.3574150	27.4320000	33.5280000
DEPTH1	3	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	3	29.6672000	3.3574150	27.4320000	33.5280000
SAL1	3	25.4666667	6.1719797	18.4000000	29.8000000
SAL2	0	.	.	.	.
SAL3	3	34.1666667	2.0132892	32.3000000	36.3000000
OXYGEN1	3	9.5666667	1.1590226	8.5000000	10.8000000
OXYGEN2	0	.	.	.	.
OXYGEN3	3	5.7000000	2.2715633	4.1000000	8.3000000
TURBID1	3	6.6666667	2.3094011	4.0000000	8.0000000
TURBID2	0	.	.	.	.
TURBID3	3	12.0000000	6.9282032	4.0000000	16.0000000
TDS1	3	25593.33	10699.26	13334.00	33048.00
TDS2	0	.	.	.	.
TDS3	3	41322.67	10298.06	34822.00	53196.00
SS1	3	47.3333333	18.0369990	30.0000000	66.0000000
SS2	0	.	.	.	.
SS3	3	63.3333333	23.1804515	48.0000000	90.0000000
TS1	3	25640.67	10684.21	13400.00	33094.00
TS2	0	.	.	.	.
TS3	3	41386.00	10289.44	34870.00	53248.00
CHLOR_A1	3	3.2666667	1.3316656	2.4000000	4.8000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	3	108.3333333	10.1159939	102.0000000	120.0000000
ALK2	0	.	.	.	.
ALK3	3	102.6666667	6.3508530	99.0000000	110.0000000
SULFATE1	3	856.6666667	305.0546399	505.0000000	1050.00
SULFATE2	0	.	.	.	.
SULFATE3	2	735.0000000	445.4772721	420.0000000	1050.00
AMMONIA1	3	2.2333333	2.3158872	0.3000000	4.8000000
AMMONIA2	0	.	.	.	.
AMMONIA3	2	2.7500000	1.0606602	2.0000000	3.5000000
CALCIUM1	3	225.3333333	165.4247059	44.0000000	368.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	3	253.3333333	206.1585151	52.0000000	464.0000000
PHOSPHA1	3	1.1333333	0.7023769	0.4000000	1.8000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	2	1.2500000	0.2121320	1.1000000	1.4000000
T_PHOS1	3	3.5666667	1.8717194	2.2000000	5.7000000
T_PHOS2	0	.	.	.	.
T_PHOS3	2	3.3500000	1.3435029	2.4000000	4.3000000
SILICA1	3	0.9333333	0.4041452	0.5000000	1.3000000
SILICA2	0	.	.	.	.
SILICA3	3	2.3333333	2.8290163	0.7000000	5.6000000
NO3NO2_1	3	0	0	0	0
NO3NO2_2	0	.	.	.	.
NO3NO2_3	2	0	0	0	0
TKN1	3	6.6000000	3.4698703	2.6000000	8.8000000
TKN2	0	.	.	.	.
TKN3	3	3.5333333	4.8013887	0	9.0000000

----- STATION=52 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	153	33.0487176	1.8587977	20.6000000	35.0520000
DEPTH1	153	0.4269739	0.3253097	0.1000000	2.1000000
DEPTH2	151	16.4418728	1.0827534	10.0700000	17.8800000
DEPTH3	152	33.0103210	1.9355113	20.6000000	35.0520000
SAL1	151	26.5493060	5.4928948	8.3000000	36.8000000
SAL2	150	33.6861100	2.9491925	15.0000000	40.0000000
SAL3	149	35.5662611	1.6723309	22.8900000	38.6600000
OXYGEN1	151	8.3993377	2.2286168	1.5000000	17.8000000
OXYGEN2	148	6.2162162	1.6386511	1.1000000	10.4000000
OXYGEN3	149	4.5751678	1.9344636	0.8000000	8.7000000
TURBID1	144	3.0121528	4.0575707	0	26.0000000
TURBID2	142	1.8125352	2.6905064	0	20.0000000
TURBID3	142	7.4756338	10.2828745	0	63.0000000
TDS1	153	30067.81	6466.99	9950.00	48800.00
TDS2	151	38185.38	3878.04	17644.00	53952.00
TDS3	152	40299.61	4464.81	24622.00	70458.00
SS1	153	23.5359477	27.4880419	0	174.0000000
SS2	151	25.5364238	28.3924344	0	132.0000000
SS3	152	36.4210526	34.4603672	0	202.0000000
TS1	153	30025.97	6431.03	9974.00	48846.00
TS2	151	38210.99	3877.63	17670.00	54016.00
TS3	152	40336.03	4468.22	24630.00	70534.00
CHLOR_A1	151	5.3163576	6.7778273	0	31.2000000
CHLOR_A2	146	1.1601370	1.6420958	0	10.1000000
CHLOR_A3	147	0.9854422	2.0836718	0	22.6600000
ALK1	153	111.7124183	13.1652819	0	140.0000000
ALK2	151	117.5960265	9.6506848	24.0000000	132.0000000
ALK3	150	120.4933333	5.4338569	88.0000000	144.0000000
SULFATE1	153	1827.01	682.1398558	350.0000000	3678.00
SULFATE2	151	2351.60	634.4001164	637.0000000	3998.00
SULFATE3	149	2482.87	608.8547433	1334.00	3988.00
AMMONIA1	152	1.4119737	1.7634922	0	14.5000000
AMMONIA2	150	1.1691333	1.0509988	0	5.7000000
AMMONIA3	151	0.9960265	1.2423768	0	13.6100000
CALCIUM1	153	311.7254902	62.0233652	88.0000000	440.0000000
CALCIUM2	151	381.0728477	51.8967050	96.0000000	672.0000000
CALCIUM3	151	397.1390728	41.6086593	100.0000000	528.0000000
PHOSPHA1	151	0.6047020	1.4749254	0	15.4000000
PHOSPHA2	149	0.3461074	0.3396555	0	3.0000000
PHOSPHA3	149	0.8055034	1.5496981	0	18.7000000
T_PHOS1	151	2.7363576	2.8812498	0	19.5599999
T_PHOS2	148	2.4617568	3.0861278	0	20.2800000
T_PHOS3	150	3.2725333	3.4442196	0	22.6700000
SILICA1	152	0.3905263	0.4189150	0	1.7000000
SILICA2	151	0.1823179	0.2473902	0	1.8000000
SILICA3	151	0.3937748	0.3785811	0	2.1000000
NO3NO2_1	152	9.8256579	14.7265006	0	98.4000000
NO3NO2_2	151	4.1084106	4.9707881	0	28.6000000
NO3NO2_3	152	6.5825658	5.7657183	0	36.4100000
TKN1	149	44.3543624	35.6352474	0	177.1400000
TKN2	147	33.8440816	29.3776571	0	116.1000000
TKN3	148	35.0627027	32.3138123	0	162.8100000

----- STATION=53 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	158	33.0561582	1.3995192	21.2000000	34.0000000
DEPTH1	159	0.4336126	0.3408300	0.1000000	3.0000000
DEPTH2	157	16.4918115	0.8456073	10.5000000	18.2000000
DEPTH3	159	33.0667874	1.3996336	21.2000000	34.7472000
SAL1	157	26.6661739	5.2561476	9.0000000	35.9000000
SAL2	156	33.8083647	2.6169577	15.7000000	37.3000000
SAL3	155	35.6483284	1.1966747	32.3000000	39.0200000
OXYGEN1	155	8.1709677	2.1524063	2.1000000	17.3000000
OXYGEN2	151	6.3304636	1.5407787	1.6000000	10.7000000
OXYGEN3	155	4.6961290	1.7533228	0.3000000	9.0000000
TURBID1	150	3.0458000	4.9508598	0	32.0000000
TURBID2	148	1.7572297	3.6120896	0	36.0000000
TURBID3	149	6.8742282	9.5764370	0	88.0000000
TDS1	159	29878.43	6178.99	10396.00	50920.00
TDS2	157	38009.50	4461.09	14390.00	56758.00
TDS3	158	40606.43	4311.33	32202.00	73732.00
SS1	159	22.5345912	26.8667080	0	172.0000000
SS2	157	26.4522293	30.0745752	0	185.0000000
SS3	158	34.6898734	32.7390575	0	183.0000000
TS1	159	29900.96	6178.65	10424.00	50962.00
TS2	157	38036.00	4459.73	14446.00	56816.00
TS3	158	40641.14	4313.93	32336.00	73790.00
CHLOR_A1	157	4.6756051	6.0954699	0	33.4000000
CHLOR_A2	153	1.2022876	2.0080262	0	11.7400000
CHLOR_A3	155	0.6584516	0.7043364	0	4.1900000
ALK1	159	113.8238994	8.6019828	76.0000000	136.0000000
ALK2	157	118.9426752	5.6264509	86.0000000	136.0000000
ALK3	158	119.7531646	10.9059013	0	144.0000000
SULFATE1	159	1881.81	658.9814654	328.0000000	3499.00
SULFATE2	157	2397.59	640.9458760	681.0000000	4017.00
SULFATE3	158	2529.21	601.9791779	1362.00	4064.00
AMMONIA1	158	1.1870253	1.3702771	0	8.7000000
AMMONIA2	156	1.3255769	1.6354142	0	14.9000000
AMMONIA3	157	1.3341401	1.7331412	0	13.6400000
CALCIUM1	159	308.7295597	59.9444559	90.0000000	460.0000000
CALCIUM2	157	381.3694268	50.0711400	97.0000000	624.0000000
CALCIUM3	158	399.8227848	43.4853396	98.0000000	680.0000000
PHOSPHA1	157	0.4389172	0.7286663	0	7.5000000
PHOSPHA2	155	0.2963226	0.2888581	0	2.2000000
PHOSPHA3	156	0.8305128	1.7832185	0	21.7000000
T_PHOS1	157	2.8400637	2.9573256	0	21.1000000
T_PHOS2	155	2.5960000	3.0852108	0	21.2000000
T_PHOS3	156	3.6061538	4.2321123	0	32.5800000
SILICA1	159	0.3425786	0.3909518	0	2.1000000
SILICA2	157	0.1485350	0.1748986	0	0.9500000
SILICA3	158	0.3733544	0.3491584	0	2.1000000
NO3NO2_1	159	9.5732075	13.6721804	0	91.0800000
NO3NO2_2	157	3.5968153	4.5520059	0	29.2000000
NO3NO2_3	158	6.2447468	5.0454258	0	34.1500000
TKN1	155	45.2783871	36.2836233	0	184.3300000
TKN2	153	36.1545098	33.2157981	0	182.4600000
TKN3	154	36.6559740	34.2078018	0	137.8000000

----- STATION=54 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	153	27.0915137	0.9866317	18.6000000	28.6512000
DEPTH1	155	0.3768826	0.2096165	0.1000000	1.6000000
DEPTH2	153	13.5953961	0.5643173	9.4000000	15.6000000
DEPTH3	155	28.1239329	12.3145927	18.6000000	179.8320000
SAL1	153	26.2927706	5.3542947	9.0000000	35.4000000
SAL2	154	33.0488909	2.8686811	16.6000000	37.1000000
SAL3	152	35.0335618	1.6286659	25.9000000	37.8000000
OXYGEN1	152	8.4427632	2.2159447	2.1000000	17.2000000
OXYGEN2	149	6.2020134	1.9128820	1.1000000	11.9000000
OXYGEN3	152	4.5098684	2.1114873	0.1000000	9.1000000
TURBID1	146	2.6828082	3.8721741	0	30.0000000
TURBID2	145	1.8238621	3.4363674	0	32.0000000
TURBID3	146	7.0780137	9.9119432	0	82.0000000
TDS1	155	29186.44	6183.96	8942.00	41127.00
TDS2	154	37255.18	4773.37	18618.00	69224.00
TDS3	154	39583.85	3576.66	26670.00	56218.00
SS1	155	24.0387097	25.0964073	0	122.0000000
SS2	154	25.0844156	27.2269453	0	148.0000000
SS3	154	31.7467532	29.8077855	0	181.0000000
TS1	155	29210.45	6184.25	8960.00	41130.00
TS2	154	37282.60	4771.01	18648.00	69262.00
TS3	154	39591.71	3583.32	26680.00	56270.00
CHLOR_A1	155	5.1424516	6.7007849	0	32.2000000
CHLOR_A2	150	1.3514000	1.9281730	0	11.4000000
CHLOR_A3	152	1.1274342	1.5753122	0	10.1000000
ALK1	154	113.5844156	8.3687102	78.0000000	130.0000000
ALK2	154	117.6103896	10.2359814	12.0000000	132.0000000
ALK3	155	119.5677419	5.8665012	85.0000000	134.0000000
SULFATE1	154	1846.32	681.5672415	395.0000000	3494.00
SULFATE2	154	2333.25	627.9753577	729.0000000	3644.00
SULFATE3	155	2477.19	620.7047501	1337.00	4088.00
AMMONIA1	153	1.2186928	1.1780943	0	8.1000000
AMMONIA2	151	1.4616556	2.4202971	0	24.6000000
AMMONIA3	153	1.6258170	1.9675541	0	14.4000000
CALCIUM1	154	303.9350649	61.0926303	86.0000000	480.0000000
CALCIUM2	154	374.5324675	51.0004702	90.0000000	624.0000000
CALCIUM3	155	394.5677419	44.8980113	94.0000000	664.0000000
PHOSPHA1	153	0.3926144	0.4677730	0	3.7300000
PHOSPHA2	151	0.3531126	0.3674093	0	2.5600000
PHOSPHA3	154	0.7436364	0.5947558	0	3.4000000
T_PHOS1	153	2.6759477	2.7770792	0	16.0000000
T_PHOS2	150	2.5800667	2.9521669	0	17.7000000
T_PHOS3	152	3.4453947	3.3630412	0	18.6300000
SILICA1	155	0.3376129	0.3727140	0	2.1000000
SILICA2	153	0.2133987	0.2720105	0	1.7000000
SILICA3	155	0.4307097	0.4536649	0	3.2000000
NO3NO2_1	154	9.8245455	14.0975217	0	86.5000000
NO3NO2_2	151	5.3161589	6.6507813	0	39.3600000
NO3NO2_3	153	6.8285621	5.8259243	0	30.7400000
TKN1	151	46.2105960	37.7728219	0	187.4800000
TKN2	148	35.9025000	33.1097737	0	219.3000000
TKN3	150	37.9379333	35.3223019	0	180.1700000

----- STATION=55 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	149	33.9521799	1.8540555	19.5000000	35.0000000
DEPTH1	151	0.4315682	0.3229568	0	1.9000000
DEPTH2	148	16.9757054	1.0471619	9.0000000	18.6000000
DEPTH3	150	33.9625920	1.8487259	19.5000000	35.8300000
SAL1	151	27.0764715	5.4126625	8.6000000	36.5000000
SAL2	147	34.0841551	2.3290517	20.0000000	37.7500000
SAL3	150	35.7832820	1.1127516	32.3000000	38.8400000
OXYGEN1	146	8.2260274	1.9954104	2.1000000	16.6000000
OXYGEN2	143	6.3678322	1.6162294	0.9000000	10.1000000
OXYGEN3	146	4.7500000	1.7737647	0.4000000	8.3000000
TURBID1	142	2.6842958	3.9498910	0	32.0000000
TURBID2	140	1.4674286	2.3020249	0	22.0000000
TURBID3	140	6.3599286	8.0443229	0	60.0000000
TDS1	151	30514.86	7018.94	10210.00	63894.00
TDS2	149	38489.97	4949.08	16916.00	69488.00
TDS3	150	40638.28	3404.70	34625.00	69000.00
SS1	151	21.1854305	22.6225268	0	134.0000000
SS2	149	24.3422819	26.1838025	0	162.0000000
SS3	150	35.1066667	32.0817217	1.0000000	188.0000000
TS1	151	30535.35	7017.61	10232.00	63938.00
TS2	149	38514.31	4946.23	17078.00	69518.00
TS3	150	40673.39	3407.51	34660.00	69060.00
CHLOR_A1	149	4.4774497	6.3218913	0	32.5700000
CHLOR_A2	143	1.0912587	1.7033103	0	10.0000000
CHLOR_A3	145	0.6985517	0.7386624	0	5.2000000
ALK1	150	114.8133333	8.1663795	82.0000000	130.0000000
ALK2	149	118.9530201	5.2893769	90.0000000	130.0000000
ALK3	150	120.8533333	3.9295587	100.0000000	134.0000000
SULFATE1	151	1943.94	673.5880564	344.0000000	3516.00
SULFATE2	149	2405.81	608.4402341	1003.00	4004.00
SULFATE3	150	2570.79	586.1587537	1486.00	4498.00
AMMONIA1	150	1.2408667	1.2737336	0	8.7000000
AMMONIA2	148	1.3081081	1.8691747	0	18.2000000
AMMONIA3	149	1.2298658	2.0080005	0	18.9000000
CALCIUM1	151	312.6887417	56.0319177	124.0000000	444.0000000
CALCIUM2	149	384.6912752	42.6647679	127.0000000	656.0000000
CALCIUM3	150	399.8266667	30.5053074	142.0000000	472.0000000
PHOSPHA1	149	0.4120805	0.8851846	0	10.2000000
PHOSPHA2	147	0.3204082	0.6888524	0	7.8000000
PHOSPHA3	148	0.7400676	1.3141183	0	15.1000000
T_PHOS1	148	2.6960135	2.8182181	0	15.0200000
T_PHOS2	146	2.5891096	3.1326082	0	18.7000000
T_PHOS3	147	3.4678231	3.8852181	0	23.5000000
SILICA1	151	0.2855629	0.3364296	0	1.6200000
SILICA2	148	0.1577027	0.2380765	0	1.5900000
SILICA3	149	0.3134899	0.2660901	0	1.2000000
NO3NO2_1	150	9.1684667	13.2388764	0	85.8100000
NO3NO2_2	148	3.8681757	5.2176841	0	35.0200000
NO3NO2_3	149	6.3357047	5.0081771	0	29.9600000
TKN1	148	45.3373649	36.2736554	0	186.9700000
TKN2	145	37.0352414	30.8698866	0	140.8100000
TKN3	147	36.9217007	34.2713453	0	174.0200000

----- STATION=408 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	2	0.8000000	0.1414214	0.7000000	0.9000000
DEPTH1	2	0.2500000	0.0707107	0.2000000	0.3000000
DEPTH2	0	.	.	.	.
DEPTH3	2	0.8000000	0.1414214	0.7000000	0.9000000
SAL1	1	24.0100000	.	24.0100000	24.0100000
SAL2	0	.	.	.	.
SAL3	1	21.1500000	.	21.1500000	21.1500000
OXYGEN1	1	5.8000000	.	5.8000000	5.8000000
OXYGEN2	0	.	.	.	.
OXYGEN3	1	8.1000000	.	8.1000000	8.1000000
TURBID1	1	0.0200000	.	0.0200000	0.0200000
TURBID2	0	.	.	.	.
TURBID3	1	42.0000000	.	42.0000000	42.0000000
TDS1	1	29921.00	.	29921.00	29921.00
TDS2	0	.	.	.	.
TDS3	1	22830.00	.	22830.00	22830.00
SS1	1	83.0000000	.	83.0000000	83.0000000
SS2	0	.	.	.	.
SS3	1	80.0000000	.	80.0000000	80.0000000
TS1	1	30004.00	.	30004.00	30004.00
TS2	0	.	.	.	.
TS3	1	22910.00	.	22910.00	22910.00
CHLOR_A1	1	15.9800000	.	15.9800000	15.9800000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	1	30.7800000	.	30.7800000	30.7800000
ALK1	1	122.0000000	.	122.0000000	122.0000000
ALK2	0	.	.	.	.
ALK3	1	108.0000000	.	108.0000000	108.0000000
SULFATE1	1	1645.00	.	1645.00	1645.00
SULFATE2	0	.	.	.	.
SULFATE3	1	1472.00	.	1472.00	1472.00
AMMONIA1	1	0.2400000	.	0.2400000	0.2400000
AMMONIA2	0	.	.	.	.
AMMONIA3	1	4.7600000	.	4.7600000	4.7600000
CALCIUM1	1	312.0000000	.	312.0000000	312.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	1	224.0000000	.	224.0000000	224.0000000
PHOSPHA1	1	0.5900000	.	0.5900000	0.5900000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	1	0.1700000	.	0.1700000	0.1700000
T_PHOS1	1	8.1500000	.	8.1500000	8.1500000
T_PHOS2	0	.	.	.	.
T_PHOS3	1	9.1800000	.	9.1800000	9.1800000
SILICA1	1	0.4800000	.	0.4800000	0.4800000
SILICA2	0	.	.	.	.
SILICA3	1	0.4700000	.	0.4700000	0.4700000
NO3NO2_1	1	0.7900000	.	0.7900000	0.7900000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	1	1.3600000	.	1.3600000	1.3600000
TKN1	1	141.7000000	.	141.7000000	141.7000000
TKN2	0	.	.	.	.
TKN3	1	108.8400000	.	108.8400000	108.8400000

----- STATION=410 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	2	1.3000000	0.1414214	1.2000000	1.4000000
DEPTH1	2	0.2000000	0.1414214	0.1000000	0.3000000
DEPTH2	0	.	.	.	.
DEPTH3	2	1.3000000	0.1414214	1.2000000	1.4000000
SAL1	1	18.0900000	.	18.0900000	18.0900000
SAL2	0	.	.	.	.
SAL3	1	21.5100000	.	21.5100000	21.5100000
OXYGEN1	1	6.5000000	.	6.5000000	6.5000000
OXYGEN2	0	.	.	.	.
OXYGEN3	1	8.3500000	.	8.3500000	8.3500000
TURBID1	1	39.0000000	.	39.0000000	39.0000000
TURBID2	0	.	.	.	.
TURBID3	1	20.0000000	.	20.0000000	20.0000000
TDS1	1	21502.00	.	21502.00	21502.00
TDS2	0	.	.	.	.
TDS3	1	23624.00	.	23624.00	23624.00
SS1	1	80.0000000	.	80.0000000	80.0000000
SS2	0	.	.	.	.
SS3	1	38.0000000	.	38.0000000	38.0000000
TS1	1	21582.00	.	21582.00	21582.00
TS2	0	.	.	.	.
TS3	1	23662.00	.	23662.00	23662.00
CHLOR_A1	1	11.6700000	.	11.6700000	11.6700000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	1	23.8400000	.	23.8400000	23.8400000
ALK1	1	114.0000000	.	114.0000000	114.0000000
ALK2	0	.	.	.	.
ALK3	1	108.0000000	.	108.0000000	108.0000000
SULFATE1	1	1278.00	.	1278.00	1278.00
SULFATE2	0	.	.	.	.
SULFATE3	1	1535.00	.	1535.00	1535.00
AMMONIA1	1	0.2800000	.	0.2800000	0.2800000
AMMONIA2	0	.	.	.	.
AMMONIA3	1	10.6200000	.	10.6200000	10.6200000
CALCIUM1	1	240.0000000	.	240.0000000	240.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	1	232.0000000	.	232.0000000	232.0000000
PHOSPHA1	1	0.8100000	.	0.8100000	0.8100000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	1	0.2100000	.	0.2100000	0.2100000
T_PHOS1	1	8.7700000	.	8.7700000	8.7700000
T_PHOS2	0	.	.	.	.
T_PHOS3	1	5.8600000	.	5.8600000	5.8600000
SILICA1	1	0.3700000	.	0.3700000	0.3700000
SILICA2	0	.	.	.	.
SILICA3	1	0.4900000	.	0.4900000	0.4900000
NO3NO2_1	1	0	.	0	0
NO3NO2_2	0	.	.	.	.
NO3NO2_3	1	2.6300000	.	2.6300000	2.6300000
TKN1	1	129.1000000	.	129.1000000	129.1000000
TKN2	0	.	.	.	.
TKN3	1	93.7800000	.	93.7800000	93.7800000

----- STATION=434 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	10	2.1336000	0.4310523	1.5240000	3.0480000
DEPTH1	8	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	10	2.1336000	0.4310523	1.5240000	3.0480000
SAL1	0	.	.	.	.
SAL2	0	.	.	.	.
SAL3	7	24.2428571	4.3611379	18.7000000	30.4000000
OXYGEN1	0	.	.	.	.
OXYGEN2	0	.	.	.	.
OXYGEN3	10	6.8500000	1.9196354	4.7000000	10.2000000
TURBID1	0	.	.	.	.
TURBID2	0	.	.	.	.
TURBID3	10	53.3000000	19.9167713	32.0000000	97.0000000
TDS1	0	.	.	.	.
TDS2	0	.	.	.	.
TDS3	10	27296.60	3447.88	21648.00	31780.00
SS1	0	.	.	.	.
SS2	0	.	.	.	.
SS3	10	89.4000000	39.4410953	22.0000000	154.0000000
TS1	0	.	.	.	.
TS2	0	.	.	.	.
TS3	10	27384.20	3440.90	21778.00	31840.00
CHLOR_A1	8	20.5750000	16.7739381	2.6000000	46.5000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	0	.	.	.	.
ALK2	0	.	.	.	.
ALK3	10	116.9000000	26.8553740	66.0000000	155.0000000
SULFATE1	0	.	.	.	.
SULFATE2	0	.	.	.	.
SULFATE3	10	937.7000000	227.3900467	510.0000000	1273.00
AMMONIA1	0	.	.	.	.
AMMONIA2	0	.	.	.	.
AMMONIA3	10	3.9400000	4.0702716	0.1000000	11.4000000
CALCIUM1	0	.	.	.	.
CALCIUM2	0	.	.	.	.
CALCIUM3	10	320.8000000	58.1431184	220.0000000	404.0000000
PHOSPHA1	0	.	.	.	.
PHOSPHA2	0	.	.	.	.
PHOSPHA3	9	1.2333333	0.7483315	0.2000000	2.3000000
T_PHOS1	0	.	.	.	.
T_PHOS2	0	.	.	.	.
T_PHOS3	9	5.5555556	2.3749269	3.3000000	10.9000000
SILICA1	0	.	.	.	.
SILICA2	0	.	.	.	.
SILICA3	10	2.1000000	1.3498971	0.1000000	4.3000000
NO3NO2_1	0	.	.	.	.
NO3NO2_2	0	.	.	.	.
NO3NO2_3	10	1.0400000	2.5509040	0	8.1000000
TKN1	0	.	.	.	.
TKN2	0	.	.	.	.
TKN3	10	16.2500000	13.0695788	2.9000000	39.9000000

----- STATION=435 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	59	9.6534203	2.5311142	1.8288000	10.9728000
DEPTH1	63	0.3935111	0.2864401	0.1000000	1.7000000
DEPTH2	3	2.7432000	0.3048000	2.4384000	3.0480000
DEPTH3	61	10.6510361	1.3216923	8.5344000	19.5072000
SAL1	63	25.2774603	5.7887853	11.8000000	36.5000000
SAL2	3	31.6333333	0.6429101	30.9000000	32.1000000
SAL3	59	31.0340678	3.6603778	17.9000000	37.9000000
OXYGEN1	62	9.0629032	2.3604830	3.6000000	16.8000000
OXYGEN2	3	3.3000000	2.7622455	0.2000000	5.5000000
OXYGEN3	61	5.0721311	2.7117111	0	11.9000000
TURBID1	60	7.2676667	12.3307394	0	65.0000000
TURBID2	3	12.6666667	2.3094011	10.0000000	14.0000000
TURBID3	58	12.4344828	16.6655391	1.0000000	98.0000000
TDS1	61	28296.89	6317.39	13224.00	39221.00
TDS2	2	36606.50	382.5447686	36336.00	36877.00
TDS3	61	34984.72	4408.53	20388.00	47688.00
SS1	61	25.5737705	33.4412216	0	208.0000000
SS2	2	8.5000000	6.3639610	4.0000000	13.0000000
SS3	61	37.0163934	37.2628017	0	232.0000000
TS1	62	28232.13	6307.48	13226.00	39230.00
TS2	2	36615.00	388.9087297	36340.00	36890.00
TS3	61	35021.54	4407.60	20390.00	47724.00
CHLOR_A1	62	9.3432258	16.2420554	0.3000000	113.0000000
CHLOR_A2	3	3.0333333	0.6506407	2.4000000	3.7000000
CHLOR_A3	32	3.0721875	3.0089798	0.2500000	15.1000000
ALK1	63	112.1746032	9.9782662	90.0000000	144.0000000
ALK2	3	121.3333333	3.0550505	118.0000000	124.0000000
ALK3	60	116.3333333	6.7514384	96.0000000	131.0000000
SULFATE1	62	1583.35	682.9388782	350.0000000	3343.00
SULFATE2	3	2197.67	59.9694367	2150.00	2265.00
SULFATE3	60	1974.88	671.6133899	942.0000000	3476.00
AMMONIA1	60	1.3898333	1.2089293	0	4.9000000
AMMONIA2	3	9.5333333	4.8418316	6.3000000	15.1000000
AMMONIA3	59	5.0974576	5.1943469	0	22.8800000
CALCIUM1	63	297.7777778	55.0414637	176.0000000	396.0000000
CALCIUM2	3	366.6666667	14.0475383	352.0000000	380.0000000
CALCIUM3	60	356.6000000	51.1180753	216.0000000	584.0000000
PHOSPHA1	61	0.6306557	0.9506855	0	6.2800000
PHOSPHA2	3	1.9000000	1.9924859	0.7000000	4.2000000
PHOSPHA3	59	1.1833898	1.2119528	0	6.1100000
T_PHOS1	62	3.4196774	6.6155292	0	50.8300000
T_PHOS2	3	3.8333333	2.4785749	1.6000000	6.5000000
T_PHOS3	61	4.4911475	8.2279659	0.1000000	63.2100000
SILICA1	62	0.5308065	0.4952042	0	2.5000000
SILICA2	3	0.6666667	0.4041452	0.3000000	1.1000000
SILICA3	59	0.6805085	0.6985439	0	3.7900000
NO3NO2_1	60	8.1688333	12.1411872	0	53.6000000
NO3NO2_2	3	2.9666667	4.2770706	0.3000000	7.9000000
NO3NO2_3	59	5.8606780	5.9881728	0	26.0800000
TKN1	61	43.8167213	35.2773565	1.5000000	151.4000000
TKN2	3	43.7000000	29.5081345	22.0000000	77.3000000
TKN3	59	43.4671186	31.5856176	0	135.4000000

----- STATION=460 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	10	2.0116800	0.3577705	1.5240000	2.4384000
DEPTH1	7	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	10	2.0116800	0.3577705	1.5240000	2.4384000
SAL1	0	.	.	.	.
SAL2	0	.	.	.	.
SAL3	8	25.6375000	5.2478397	15.6000000	30.2000000
OXYGEN1	0	.	.	.	.
OXYGEN2	0	.	.	.	.
OXYGEN3	10	6.7700000	2.2045660	3.9000000	11.5000000
TURBID1	0	.	.	.	.
TURBID2	0	.	.	.	.
TURBID3	10	54.5000000	20.3919919	26.0000000	84.0000000
TDS1	0	.	.	.	.
TDS2	0	.	.	.	.
TDS3	10	26132.40	4871.96	18836.00	34490.00
SS1	0	.	.	.	.
SS2	0	.	.	.	.
SS3	10	80.4000000	45.6829655	10.0000000	160.0000000
TS1	0	.	.	.	.
TS2	0	.	.	.	.
TS3	10	26212.80	4886.89	18846.00	34586.00
CHLOR_A1	7	18.1714286	15.7071867	2.8000000	38.5000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	0	.	.	.	.
ALK2	0	.	.	.	.
ALK3	9	117.4444444	27.3729388	84.0000000	162.0000000
SULFATE1	0	.	.	.	.
SULFATE2	0	.	.	.	.
SULFATE3	10	884.9000000	309.8320154	445.0000000	1515.00
AMMONIA1	0	.	.	.	.
AMMONIA2	0	.	.	.	.
AMMONIA3	10	5.1100000	5.8272254	0.7000000	18.8000000
CALCIUM1	0	.	.	.	.
CALCIUM2	0	.	.	.	.
CALCIUM3	10	314.0000000	91.2578764	216.0000000	472.0000000
PHOSPHA1	0	.	.	.	.
PHOSPHA2	0	.	.	.	.
PHOSPHA3	9	1.1555556	0.5768689	0.2000000	2.0000000
T_PHOS1	0	.	.	.	.
T_PHOS2	0	.	.	.	.
T_PHOS3	9	6.0555556	2.5904204	3.3000000	10.5000000
SILICA1	0	.	.	.	.
SILICA2	0	.	.	.	.
SILICA3	10	2.2800000	1.7138650	0.2000000	5.0000000
NO3NO2_1	0	.	.	.	.
NO3NO2_2	0	.	.	.	.
NO3NO2_3	10	0.2200000	0.4131182	0	1.2000000
TKN1	0	.	.	.	.
TKN2	0	.	.	.	.
TKN3	10	16.0700000	16.3968866	0	49.2000000

----- STATION=461 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	58	0.9961241	0.4648582	0.1000000	2.7432000
DEPTH1	36	0.2811111	0.1204434	0	0.6000000
DEPTH2	0	.	.	.	.
DEPTH3	53	1.0475472	0.4146975	0.1000000	2.1336000
SAL1	13	1.7432308	1.3950477	0.3000000	4.6000000
SAL2	0	.	.	.	.
SAL3	53	2.7807019	2.2609412	0.3000000	9.1000000
OXYGEN1	13	7.2000000	2.7952340	2.7000000	12.0000000
OXYGEN2	0	.	.	.	.
OXYGEN3	52	7.2903846	3.4358696	2.2000000	21.1000000
TURBID1	12	33.7166667	31.6375161	5.2000000	95.0000000
TURBID2	0	.	.	.	.
TURBID3	52	29.5288462	27.2131264	2.9000000	123.0000000
TDS1	12	4192.83	8246.65	458.0000000	30014.00
TDS2	0	.	.	.	.
TDS3	53	3319.79	2848.82	410.0000000	13112.00
SS1	12	74.1666667	103.6022405	0	292.0000000
SS2	0	.	.	.	.
SS3	53	42.6037736	49.6550949	0	278.0000000
TS1	12	4267.83	8239.27	522.0000000	30048.00
TS2	0	.	.	.	.
TS3	53	3352.09	2855.63	282.0000000	13122.00
CHLOR_A1	36	32.9230556	34.3720337	3.3300000	175.4000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	27	21.0044444	12.4994182	0	53.4000000
ALK1	13	80.3846154	13.4755239	54.0000000	100.0000000
ALK2	0	.	.	.	.
ALK3	53	99.3396226	21.2258400	22.0000000	150.0000000
SULFATE1	13	183.8461538	82.3851181	0	323.0000000
SULFATE2	0	.	.	.	.
SULFATE3	53	193.2264151	251.4841057	0	1740.00
AMMONIA1	13	4.2207692	4.2006854	0.1000000	12.9200000
AMMONIA2	0	.	.	.	.
AMMONIA3	52	4.9905769	8.6907572	0	56.0000000
CALCIUM1	13	42.4615385	15.8777380	12.0000000	68.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	53	70.4150943	47.8030551	20.0000000	312.0000000
PHOSPHA1	13	1.6261538	1.3635954	0.1100000	5.6000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	53	1.8062264	1.6068558	0.1000000	6.4000000
T_PHOS1	13	8.6115385	2.1561109	5.7500000	12.8000000
T_PHOS2	0	.	.	.	.
T_PHOS3	51	6.8868627	3.5102567	0	17.8000000
SILICA1	13	1.8538462	1.0679618	0.5400000	3.8000000
SILICA2	0	.	.	.	.
SILICA3	52	2.4728846	1.6395448	0.2000000	8.6000000
NO3NO2_1	13	2.8530769	7.5862138	0	27.8600000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	51	4.1854902	7.7468957	0	30.2000000
TKN1	13	152.3984615	85.8338671	24.8000000	318.9000000
TKN2	0	.	.	.	.
TKN3	50	101.8636000	56.0866298	6.1000000	252.0000000

----- STATION=462 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	61	0.9418361	0.1924225	0.3100000	1.5240000
DEPTH1	35	0.2517257	0.1083249	0	0.4000000
DEPTH2	0	.	.	.	.
DEPTH3	60	0.9362800	0.1830185	0.3000000	1.5240000
SAL1	10	14.7790000	5.3600279	5.9000000	25.6000000
SAL2	0	.	.	.	.
SAL3	58	18.6989655	3.8703772	8.6000000	25.9000000
OXYGEN1	9	6.9777778	1.3709283	4.9000000	9.5000000
OXYGEN2	0	.	.	.	.
OXYGEN3	58	7.4758621	1.8793719	2.9000000	11.7000000
TURBID1	9	14.1000000	7.7090855	4.5000000	27.0000000
TURBID2	0	.	.	.	.
TURBID3	59	24.5796610	17.4916609	5.4000000	77.0000000
TDS1	9	17486.22	6105.08	6554.00	28006.00
TDS2	0	.	.	.	.
TDS3	60	21005.77	5415.17	3308.00	35358.00
SS1	9	28.8888889	24.5175674	6.0000000	90.0000000
SS2	0	.	.	.	.
SS3	60	55.2500000	42.9558800	2.0000000	226.0000000
TS1	9	17515.11	6101.29	6578.00	28016.00
TS2	0	.	.	.	.
TS3	60	21061.02	5413.15	3368.00	35408.00
CHLOR_A1	35	17.2571429	11.2367010	3.0400000	62.9000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	25	14.0116000	6.9256111	4.9000000	33.3000000
ALK1	10	102.1000000	13.7634782	82.0000000	131.0000000
ALK2	0	.	.	.	.
ALK3	60	110.5333333	15.2687414	80.0000000	148.0000000
SULFATE1	10	1020.00	552.7078794	315.0000000	2131.00
SULFATE2	0	.	.	.	.
SULFATE3	60	1097.95	544.8492693	64.0000000	2818.00
AMMONIA1	10	3.1610000	3.3043690	0	8.9600000
AMMONIA2	0	.	.	.	.
AMMONIA3	59	2.7555932	3.2906976	0	18.6400000
CALCIUM1	10	186.4000000	55.8474112	84.0000000	284.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	60	232.8000000	57.6878802	100.0000000	420.0000000
PHOSPHA1	10	0.6470000	0.4770989	0	1.4000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	60	0.5053333	0.4657943	0	2.6000000
T_PHOS1	10	6.5920000	2.7005876	2.7000000	10.2200000
T_PHOS2	0	.	.	.	.
T_PHOS3	59	4.7330508	3.0269834	0.5000000	15.7000000
SILICA1	10	1.7810000	1.3287877	0.2700000	4.3000000
SILICA2	0	.	.	.	.
SILICA3	59	1.1447458	1.0558088	0	4.2800000
NO3NO2_1	10	1.6110000	2.8331939	0	9.3600000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	59	1.0333898	1.6624708	0	8.9100000
TKN1	10	129.1250000	72.9527810	29.8000000	239.6700000
TKN2	0	.	.	.	.
TKN3	58	84.4886207	58.2085661	0	299.6300000

Variable	n	Mean	Std Dev	Minimum	Maximum
DEPTH	58	1.5988552	0.7872984	0.1000000	4.8000000
DEPTH1	37	0.2655351	0.1022863	0.1000000	0.8000000
DEPTH2	0	1.5880702	0.6240590	0.1000000	0.6000000
DEPTH3	57	2.1081538	1.6258420	0.5000000	5.3000000
SAL1	13	2.1081538	1.6258420	0.1000000	2.7432000
SAL2	0	0.6240590	0.4000000	0.5000000	5.3000000
SAL3	57	2.8255789	2.4009707	0.5000000	9.6000000
OXYGEN1	14	7.5357143	1.7783342	5.3000000	10.7000000
OXYGEN2	0	2.8255789	2.4009707	0.5000000	9.6000000
OXYGEN3	56	7.1803571	2.5404666	2.7000000	13.7000000
TURB1D1	12	58.9575000	63.6938091	6.4000000	200.0000000
TURB1D2	0	46.1296296	53.3525286	8.0000000	228.0000000
TURB1D3	54	2518.67	1819.32	768.0000000	5520.00
TDS2	12	3534.49	3233.81	606.0000000	13886.00
TDS3	0	3643.77	3215.56	826.0000000	13906.00
TSS1	55	67.0909091	88.7692124	4.0000000	544.0000000
TSS2	0	84.8333333	107.7554751	6.0000000	370.0000000
TSS3	12	3534.49	3233.81	606.0000000	13886.00
TSS4	0	3643.77	3215.56	826.0000000	13906.00
TSS5	12	2603.50	1850.89	874.0000000	5544.00
TSS6	0	67.0909091	88.7692124	4.0000000	544.0000000
TSS7	12	84.8333333	107.7554751	6.0000000	370.0000000
TSS8	0	3534.49	3233.81	606.0000000	13886.00
CHLOR_A1	36	30.367778	28.2863216	0	133.8000000
CHLOR_A2	0	3643.77	3215.56	826.0000000	13906.00
CHLOR_A3	26	24.2211538	12.4192616	3.9000000	53.0000000
ALK1	13	81.3846154	11.7085329	60.0000000	99.0000000
ALK2	0	81.3846154	11.7085329	60.0000000	99.0000000
ALK3	57	92.9649123	19.5146144	30.0000000	142.0000000
SULFATE1	13	182.0000000	77.6809715	0	323.0000000
SULFATE2	0	182.0000000	77.6809715	0	323.0000000
SULFATE3	57	209.05266316	240.6329764	0	1655.00
AMMONIA1	13	4.3384615	5.1456970	0	13.0900000
AMMONIA2	0	4.3384615	5.1456970	0	13.0900000
AMMONIA3	55	5.2525455	8.9849414	0	56.0000000
CALCIUM1	13	51.6923077	28.7268301	16.0000000	120.0000000
CALCIUM2	0	51.6923077	28.7268301	16.0000000	120.0000000
PHOSPHA1	13	2.2330769	33.1014996	16.0000000	152.0000000
PHOSPHA2	0	2.2330769	33.1014996	16.0000000	152.0000000
PHOSPHA3	57	2.2429825	2.8779711	0.1000000	16.1000000
T_PHOS1	13	9.5738462	4.4950891	2.9000000	19.5200000
T_PHOS2	0	9.5738462	4.4950891	2.9000000	19.5200000
T_PHOS3	55	8.8472727	7.4984259	0	36.1000000
SILICA1	13	1.9423077	0.8835172	0.7600000	3.7000000
SILICA2	0	1.9423077	0.8835172	0.7600000	3.7000000
SILICA3	57	2.6366667	2.3873755	0.3000000	13.3000000
NO3N02_1	13	3.8346154	10.4160410	0	38.0200000
NO3N02_2	0	3.8346154	10.4160410	0	38.0200000
NO3N02_3	54	6.6177778	14.5092898	0	84.8000000
TKN1	13	145.7238462	106.8783820	10.8000000	327.0800000
TKN2	0	145.7238462	106.8783820	10.8000000	327.0800000
TKN3	54	92.8622222	55.7178330	2.2000000	252.6500000

----- STATION=464 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	58	2.0459862	0.9738841	0.2000000	3.6576000
DEPTH1	36	0.2533333	0.0988760	0	0.4000000
DEPTH2	0	.	.	.	.
DEPTH3	58	2.1501793	0.9340627	0.1000000	3.6576000
SAL1	13	1.9742308	1.8219729	0.5000000	6.4000000
SAL2	0	.	.	.	.
SAL3	56	3.3858929	2.9794312	0.5000000	13.3000000
OXYGEN1	12	7.2583333	1.8347446	4.6000000	9.9000000
OXYGEN2	0	.	.	.	.
OXYGEN3	57	7.3605263	1.9066785	3.4000000	11.6000000
TURBID1	12	41.7250000	36.6146797	3.7000000	112.0000000
TURBID2	0	.	.	.	.
TURBID3	57	34.7508772	29.1130072	4.5000000	114.0000000
TDS1	12	2266.33	2062.89	632.0000000	6800.00
TDS2	0	.	.	.	.
TDS3	57	3926.28	3340.02	608.0000000	13678.00
SS1	12	59.6666667	42.5362590	8.0000000	120.0000000
SS2	0	.	.	.	.
SS3	57	57.4035088	53.2057528	0	236.0000000
TS1	12	2326.00	2050.16	704.0000000	6874.00
TS2	0	.	.	.	.
TS3	57	3983.68	3330.69	774.0000000	13712.00
CHLOR_A1	35	18.4502857	16.5419263	3.2000000	97.3000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	29	16.3041379	10.6552202	0	40.1000000
ALK1	13	70.6153846	13.1500219	54.0000000	102.0000000
ALK2	0	.	.	.	.
ALK3	57	84.8070175	19.9198740	40.0000000	148.0000000
SULFATE1	13	167.0769231	95.3995646	0	434.0000000
SULFATE2	0	.	.	.	.
SULFATE3	58	218.7068966	253.7689244	0	1719.00
AMMONIA1	13	2.3692308	2.9806108	0	10.3000000
AMMONIA2	0	.	.	.	.
AMMONIA3	56	5.0503571	9.5642313	0	65.6000000
CALCIUM1	13	50.1538462	26.1082559	24.0000000	112.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	58	66.6551724	46.7698927	20.0000000	280.0000000
PHOSPHA1	13	1.5153846	1.8343919	0	6.5000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	57	1.1752632	0.9651704	0	4.3000000
T_PHOS1	13	7.5953846	2.1332667	3.2000000	10.6000000
T_PHOS2	0	.	.	.	.
T_PHOS3	56	6.0867857	3.6355668	0	16.6000000
SILICA1	13	1.4953846	0.8747820	0.6100000	3.7000000
SILICA2	0	.	.	.	.
SILICA3	57	1.8915789	1.3888482	0.3000000	7.6600000
NO3NO2_1	13	3.9884615	9.3379814	0	34.1200000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	56	6.8382143	11.1925212	0	52.6000000
TKN1	13	148.0830769	97.9998090	5.3000000	321.8800000
TKN2	0
TKN3	51	102.2009804	69.2249404	1.7000000	306.5000000

----- STATION=465 -----

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Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	3	1.1176000	0.1759764	0.9144000	1.2192000
DEPTH1	1	0.3048000	.	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	3	1.1176000	0.1759764	0.9144000	1.2192000
SAL1	0	.	.	.	.
SAL2	0	.	.	.	.
SAL3	3	0.1666667	0.2081666	0	0.4000000
OXYGEN1	0	.	.	.	.
OXYGEN2	0	.	.	.	.
OXYGEN3	3	4.9333333	5.4500765	1.3000000	11.2000000
TURBID1	0	.	.	.	.
TURBID2	0	.	.	.	.
TURBID3	3	71.0000000	34.0734501	32.0000000	95.0000000
TDS1	0	.	.	.	.
TDS2	0	.	.	.	.
TDS3	3	413.3333333	244.1993721	140.0000000	610.0000000
SS1	0	.	.	.	.
SS2	0	.	.	.	.
SS3	3	29.3333333	45.7092259	0	82.0000000
TS1	0	.	.	.	.
TS2	0	.	.	.	.
TS3	3	442.6666667	263.0386537	140.0000000	616.0000000
CHLOR_A1	1	33.2000000	.	33.2000000	33.2000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	0	.	.	.	.
ALK2	0	.	.	.	.
ALK3	3	41.0000000	35.7910603	1.0000000	70.0000000
SULFATE1	0	.	.	.	.
SULFATE2	0	.	.	.	.
SULFATE3	3	43.3333333	75.0555350	0	130.0000000
AMMONIA1	0	.	.	.	.
AMMONIA2	0	.	.	.	.
AMMONIA3	3	4.6000000	3.1953091	2.1000000	8.2000000
CALCIUM1	0	.	.	.	.
CALCIUM2	0	.	.	.	.
CALCIUM3	3	93.3333333	127.0800273	16.0000000	240.0000000
PHOSPHA1	0	.	.	.	.
PHOSPHA2	0	.	.	.	.
PHOSPHA3	3	4.1000000	3.1320920	0.5000000	6.2000000
T_PHOS1	0	.	.	.	.
T_PHOS2	0	.	.	.	.
T_PHOS3	3	10.6333333	8.4907793	1.3000000	17.9000000
SILICA1	0	.	.	.	.
SILICA2	0	.	.	.	.
SILICA3	3	5.0333333	3.7819748	1.0000000	8.5000000
NO3NO2_1	0	.	.	.	.
NO3NO2_2	0	.	.	.	.
NO3NO2_3	3	3.5333333	2.6388129	0.5000000	5.3000000
TKN1	0	.	.	.	.
TKN2	0	.	.	.	.
TKN3	3	22.2666667	12.0192901	13.2000000	35.9000000

----- STATION=466 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	10	1.1582400	0.2800919	0.9144000	1.5240000
DEPTH1	6	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	10	1.1582400	0.2800919	0.9144000	1.5240000
SAL1	0	.	.	.	.
SAL2	0	.	.	.	.
SAL3	10	0.2900000	0.2846050	0	0.8000000
OXYGEN1	0	.	.	.	.
OXYGEN2	0	.	.	.	.
OXYGEN3	10	3.9400000	4.2216900	0.7000000	15.1000000
TURBID1	0	.	.	.	.
TURBID2	0	.	.	.	.
TURBID3	10	75.8000000	29.0547376	42.0000000	128.0000000
TDS1	0	.	.	.	.
TDS2	0	.	.	.	.
TDS3	10	3264.60	9171.99	76.0000000	29362.00
SS1	0	.	.	.	.
SS2	0	.	.	.	.
SS3	10	78.0000000	107.1364654	0	364.0000000
TS1	0	.	.	.	.
TS2	0	.	.	.	.
TS3	10	3342.60	9272.20	130.0000000	29726.00
CHLOR_A1	6	24.1333333	25.1067056	9.4000000	75.0000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	0	.	.	.	.
ALK2	0	.	.	.	.
ALK3	10	61.4000000	23.8476647	28.0000000	117.0000000
SULFATE1	0	.	.	.	.
SULFATE2	0	.	.	.	.
SULFATE3	10	25.1000000	33.9032938	0	100.0000000
AMMONIA1	0	.	.	.	.
AMMONIA2	0	.	.	.	.
AMMONIA3	10	5.2300000	4.7328756	0.1000000	17.1000000
CALCIUM1	0	.	.	.	.
CALCIUM2	0	.	.	.	.
CALCIUM3	9	45.7777778	66.3358458	8.0000000	220.0000000
PHOSPHA1	0	.	.	.	.
PHOSPHA2	0	.	.	.	.
PHOSPHA3	10	4.1200000	2.5165232	1.0000000	8.1000000
T_PHOS1	0	.	.	.	.
T_PHOS2	0	.	.	.	.
T_PHOS3	10	10.1500000	6.7201604	0.8000000	22.1000000
SILICA1	0	.	.	.	.
SILICA2	0	.	.	.	.
SILICA3	10	4.9000000	2.8902134	1.2000000	9.0000000
NO3NO2_1	0	.	.	.	.
NO3NO2_2	0	.	.	.	.
NO3NO2_3	10	2.7600000	3.8029813	0	11.8000000
TKN1	0	.	.	.	.
TKN2	0	.	.	.	.
TKN3	10	28.8100000	20.2951801	11.3000000	75.9000000

----- STATION=467 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	13	8.9095385	0.7272088	7.6200000	10.3632000
DEPTH1	12	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	13	8.9095385	0.7272088	7.6200000	10.3632000
SAL1	12	26.1500000	4.8773130	16.2000000	32.2000000
SAL2	0	.	.	.	.
SAL3	13	30.1615385	3.0793772	24.7000000	37.2000000
OXYGEN1	12	9.0083333	2.9168658	5.9000000	16.2000000
OXYGEN2	0	.	.	.	.
OXYGEN3	13	5.5461538	2.8759391	0.2000000	9.5000000
TURBID1	12	19.4166667	18.6667343	0	71.0000000
TURBID2	0	.	.	.	.
TURBID3	13	27.5384615	20.5410783	8.0000000	75.0000000
TDS1	12	27371.67	6756.95	13938.00	34994.00
TDS2	0	.	.	.	.
TDS3	13	33272.31	3187.71	28052.00	39332.00
SS1	12	65.6666667	54.5449495	18.0000000	226.0000000
SS2	0	.	.	.	.
SS3	13	82.7692308	53.5508385	28.0000000	234.0000000
TS1	12	27437.33	6779.69	13960.00	35220.00
TS2	0	.	.	.	.
TS3	13	33355.08	3203.94	28130.00	39424.00
CHLOR_A1	9	6.4333333	6.9395605	1.0000000	19.0000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	12	108.8333333	12.3791124	78.0000000	125.0000000
ALK2	0	.	.	.	.
ALK3	13	113.2307692	9.3733118	100.0000000	129.0000000
SULFATE1	12	1102.08	270.6216609	668.0000000	1496.00
SULFATE2	0	.	.	.	.
SULFATE3	13	1275.62	158.0277077	1018.00	1591.00
AMMONIA1	12	2.5000000	1.8522713	0.4000000	7.2000000
AMMONIA2	0	.	.	.	.
AMMONIA3	13	6.7769231	10.1938833	0.5000000	38.0000000
CALCIUM1	12	311.0000000	72.4255103	168.0000000	400.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	13	357.5384615	48.8954929	264.0000000	432.0000000
PHOSPHA1	12	0.7833333	0.6307763	0	2.0000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	13	2.3076923	3.8165127	0.1000000	14.6000000
T_PHOS1	12	2.2750000	2.3928397	0.2000000	7.4000000
T_PHOS2	0	.	.	.	.
T_PHOS3	13	4.0230769	5.3327844	0.4000000	20.7000000
SILICA1	12	0.9333333	0.5928871	0.3000000	2.4000000
SILICA2	0	.	.	.	.
SILICA3	13	1.1692308	0.7295942	0.3000000	2.7000000
NO3NO2_1	12	7.0333333	14.8099680	0	40.2000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	13	4.2307692	7.0032593	0	21.7000000
TKN1	11	17.5818182	13.3514657	1.9000000	39.6000000
TKN2	0	.	.	.	.
TKN3	12	19.7000000	13.2858092	1.9000000	40.3000000

----- STATION=468 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	17	9.8253176	0.5227277	8.8392000	11.2776000
DEPTH1	16	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	17	9.8253176	0.5227277	8.8392000	11.2776000
SAL1	16	25.2562500	5.8047071	12.2000000	32.3000000
SAL2	0	.	.	.	.
SAL3	15	30.2733333	3.6183000	24.6000000	38.5000000
OXYGEN1	16	9.3875000	3.2530755	6.6000000	16.3000000
OXYGEN2	0	.	.	.	.
OXYGEN3	17	5.9294118	2.5477354	0.2000000	9.0000000
TURBID1	16	18.6875000	20.5547034	0	70.0000000
TURBID2	0	.	.	.	.
TURBID3	17	21.0000000	16.5340558	3.0000000	61.0000000
TDS1	16	27771.38	6535.02	13736.00	36518.00
TDS2	0	.	.	.	.
TDS3	17	31955.06	5161.84	22658.00	39190.00
SS1	16	64.5000000	56.1782876	2.0000000	252.0000000
SS2	0	.	.	.	.
SS3	17	68.5882353	46.3937749	4.0000000	222.0000000
TS1	16	27835.88	6562.78	13738.00	36770.00
TS2	0	.	.	.	.
TS3	17	32023.65	5180.86	22714.00	39270.00
CHLOR_A1	15	7.2866667	8.9320344	0.5000000	32.0000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	16	110.0000000	11.4075998	82.0000000	126.0000000
ALK2	0	.	.	.	.
ALK3	17	113.0000000	9.2127629	96.0000000	135.0000000
SULFATE1	16	1040.63	329.9623968	379.0000000	1493.00
SULFATE2	0	.	.	.	.
SULFATE3	17	1223.12	231.4216612	891.0000000	1595.00
AMMONIA1	16	2.2562500	1.8290139	0	7.8000000
AMMONIA2	0	.	.	.	.
AMMONIA3	17	4.9058824	7.7066100	0.9000000	32.9000000
CALCIUM1	16	299.0000000	61.9763396	184.0000000	400.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	17	358.8235294	88.4733260	224.0000000	600.0000000
PHOSPHA1	16	0.5875000	0.4318565	0.1000000	1.7000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	17	1.4588235	2.7556893	0.3000000	12.0000000
T_PHOS1	16	1.7687500	1.2789156	0.5000000	5.6000000
T_PHOS2	0	.	.	.	.
T_PHOS3	17	2.6647059	3.0748864	0.5000000	13.5000000
SILICA1	16	0.8000000	0.5977736	0.1000000	2.4000000
SILICA2	0	.	.	.	.
SILICA3	17	0.8705882	0.8221654	0.1000000	3.3000000
NO3NO2_1	16	9.3750000	14.5634474	0	41.4000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	17	6.1058824	8.9892624	0	27.1000000
TKN1	15	22.7933333	20.8988197	0	68.0000000
TKN2	0	.	.	.	.
TKN3	16	19.9687500	14.3683782	0.7000000	45.7000000

----- STATION=469 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	17	9.7536000	0.7066497	8.2296000	11.2776000
DEPTH1	16	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	17	9.7536000	0.7066497	8.2296000	11.2776000
SAL1	16	25.2812500	5.5628792	12.5000000	31.7000000
SAL2	0	.	.	.	.
SAL3	17	29.6058824	3.4489981	23.0000000	37.9000000
OXYGEN1	16	9.3812500	3.3805756	6.4000000	17.7000000
OXYGEN2	0	.	.	.	.
OXYGEN3	16	6.5125000	2.2219736	0.2000000	9.0000000
TURBID1	16	19.1875000	22.0036929	2.0000000	74.0000000
TURBID2	0	.	.	.	.
TURBID3	17	18.3529412	16.4770339	4.0000000	73.0000000
TDS1	15	27935.87	6506.32	14248.00	36110.00
TDS2	0	.	.	.	.
TDS3	17	33341.65	4107.94	26114.00	42242.00
SS1	15	64.2666667	53.0598943	12.0000000	234.0000000
SS2	0	.	.	.	.
SS3	17	67.7647059	47.7749011	10.0000000	234.0000000
TS1	15	28000.13	6525.44	14260.00	36344.00
TS2	0	.	.	.	.
TS3	17	33409.41	4114.07	26150.00	42292.00
CHLOR_A1	15	8.7400000	11.7098127	0.3000000	38.9000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	16	109.1875000	10.8886409	88.0000000	126.0000000
ALK2	0	.	.	.	.
ALK3	17	112.5882353	9.0695839	98.0000000	131.0000000
SULFATE1	16	1059.00	328.0388188	407.0000000	1537.00
SULFATE2	0	.	.	.	.
SULFATE3	17	1278.53	184.9618601	923.0000000	1607.00
AMMONIA1	16	2.3937500	1.6889716	0.5000000	7.3000000
AMMONIA2	0	.	.	.	.
AMMONIA3	17	4.6235294	7.6953338	0.4000000	33.5000000
CALCIUM1	16	313.7500000	87.4890469	184.0000000	560.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	17	361.8823529	81.8671808	256.0000000	608.0000000
PHOSPHA1	16	0.5875000	0.3827532	0.1000000	1.4000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	17	1.3529412	2.6802793	0.1000000	11.5000000
T_PHOS1	16	2.1500000	2.3616378	0.5000000	9.7000000
T_PHOS2	0	.	.	.	.
T_PHOS3	17	2.5470588	3.9006598	0.4000000	17.3000000
SILICA1	16	0.8187500	0.6337389	0.1000000	2.6000000
SILICA2	0	.	.	.	.
SILICA3	17	0.7117647	0.6372621	0.1000000	2.6000000
NO3NO2_1	16	9.2375000	14.9168305	0	42.8000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	17	5.3647059	8.4882964	0	26.1000000
TKN1	15	24.1200000	18.3792274	1.1000000	61.6000000
TKN2	0	.	.	.	.
TKN3	16	18.9437500	13.6701119	0	50.8000000

----- STATION=470 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	17	10.5604235	0.5488641	9.4488000	12.1920000
DEPTH1	16	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	17	10.5604235	0.5488641	9.4488000	12.1920000
SAL1	15	26.6266667	5.8119909	13.1000000	33.0000000
SAL2	0	.	.	.	.
SAL3	15	30.6333333	3.1493008	25.0000000	36.6000000
OXYGEN1	15	8.4400000	2.0897026	6.3000000	13.6000000
OXYGEN2	0	.	.	.	.
OXYGEN3	16	6.1375000	2.7558120	0.3000000	10.5000000
TURBID1	16	17.9375000	20.9490453	0	70.0000000
TURBID2	0	.	.	.	.
TURBID3	17	38.0000000	65.5000000	4.0000000	285.0000000
TDS1	16	26927.38	7730.83	10330.00	36114.00
TDS2	0	.	.	.	.
TDS3	17	33905.65	10325.13	16570.00	67908.00
SS1	16	61.2500000	45.1065405	10.0000000	216.0000000
SS2	0	.	.	.	.
SS3	17	102.8235294	144.4282847	28.0000000	640.0000000
TS1	16	27113.63	7738.71	10392.00	36330.00
TS2	0	.	.	.	.
TS3	17	34008.47	10329.86	16640.00	67962.00
CHLOR_A1	13	6.4307692	8.1143273	0.4000000	28.4000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	16	110.0000000	11.7132404	82.0000000	126.0000000
ALK2	0	.	.	.	.
ALK3	17	110.1176471	13.8333038	66.0000000	129.0000000
SULFATE1	16	1019.38	370.4053410	350.0000000	1572.00
SULFATE2	0	.	.	.	.
SULFATE3	17	1227.71	303.5046879	540.0000000	1610.00
AMMONIA1	16	1.8437500	0.9667601	0.6000000	4.1000000
AMMONIA2	0	.	.	.	.
AMMONIA3	17	3.9235294	4.7831121	0.6000000	20.6000000
CALCIUM1	16	305.0000000	60.1597872	184.0000000	384.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	17	338.1176471	65.7132810	144.0000000	432.0000000
PHOSPHA1	16	0.5937500	0.4795397	0.1000000	1.9000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	17	1.4823529	2.2641873	0.3000000	9.4000000
T_PHOS1	16	1.5125000	0.6042902	0.7000000	2.9000000
T_PHOS2	0	.	.	.	.
T_PHOS3	17	2.9705882	3.5204340	0.5000000	12.2000000
SILICA1	16	0.7250000	0.6060803	0.1000000	2.5000000
SILICA2	0	.	.	.	.
SILICA3	17	0.8058824	0.6299510	0.1000000	2.3000000
NO3NO2_1	16	9.2375000	14.3710763	0	41.8000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	17	5.4941176	9.1160210	0	32.9000000
TKN1	15	24.9266667	18.6577240	0	62.9000000
TKN2	0
TKN3	16	23.8312500	26.5492930	0	111.3000000

----- STATION=471 -----

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Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	17	11.7975529	0.9192431	9.4488000	13.1064000
DEPTH1	16	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	17	11.7975529	0.9192431	9.4488000	13.1064000
SAL1	14	25.4071429	5.4482833	14.4000000	32.8000000
SAL2	0	.	.	.	.
SAL3	15	31.7600000	4.1170031	24.6000000	40.8000000
OXYGEN1	15	8.8733333	2.2088997	6.4000000	14.4000000
OXYGEN2	0	.	.	.	.
OXYGEN3	16	5.4937500	2.8195670	0	9.0000000
TURBID1	16	22.0625000	25.7098392	0	71.0000000
TURBID2	0	.	.	.	.
TURBID3	17	20.8235294	15.3021048	0	56.0000000
TDS1	15	26608.93	9137.57	2186.00	36854.00
TDS2	0	.	.	.	.
TDS3	17	33263.18	4255.94	26460.00	41072.00
SS1	15	73.7333333	68.6268030	28.0000000	302.0000000
SS2	0	.	.	.	.
SS3	17	79.4117647	53.0177551	8.0000000	248.0000000
TS1	15	26682.67	9161.51	2222.00	37156.00
TS2	0	.	.	.	.
TS3	17	33341.41	4265.91	26504.00	41156.00
CHLOR_A1	16	5.8875000	10.1223762	0	39.7000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	15	110.2000000	11.6140309	86.0000000	129.0000000
ALK2	0	.	.	.	.
ALK3	17	113.4117647	9.7919535	98.0000000	132.0000000
SULFATE1	16	1079.00	314.0670841	455.0000000	1537.00
SULFATE2	0	.	.	.	.
SULFATE3	17	1290.35	204.6622038	904.0000000	1639.00
AMMONIA1	16	2.3312500	1.5961281	0.6000000	5.6000000
AMMONIA2	0	.	.	.	.
AMMONIA3	17	7.0000000	10.5498815	0.7000000	38.0000000
CALCIUM1	15	319.2000000	75.7167655	200.0000000	496.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	17	362.8235294	72.7978668	256.0000000	560.0000000
PHOSPHA1	15	0.5200000	0.4329302	0	1.5000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	17	1.5058824	2.3575598	0.1000000	9.8000000
T_PHOS1	16	2.0687500	1.3375195	0.9000000	5.2000000
T_PHOS2	0	.	.	.	.
T_PHOS3	17	2.9294118	3.9513866	0.3000000	16.7000000
SILICA1	15	0.7266667	0.5969765	0	2.2000000
SILICA2	0	.	.	.	.
SILICA3	17	0.8411765	0.8093661	0.1000000	3.3000000
NO3NO2_1	16	9.0250000	14.4914918	0	43.6000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	17	4.5176471	6.8576814	0	22.6000000
TKN1	15	24.5333333	18.9542557	2.6000000	65.4000000
TKN2	0	.	.	.	.
TKN3	16	21.1375000	15.4151387	2.2000000	55.9000000

----- STATION=472 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	17	11.2058824	0.7810363	9.4488000	12.4968000
DEPTH1	16	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	17	11.2058824	0.7810363	9.4488000	12.4968000
SAL1	15	25.6600000	6.3683144	12.8000000	32.5000000
SAL2	0	.	.	.	.
SAL3	15	30.5733333	4.2396878	20.8000000	36.9000000
OXYGEN1	16	8.5312500	2.1549072	3.5000000	12.2000000
OXYGEN2	0	.	.	.	.
OXYGEN3	16	6.6937500	2.2350149	0.5000000	9.9000000
TURBID1	16	24.0000000	30.2985148	0	92.0000000
TURBID2	0	.	.	.	.
TURBID3	17	18.4705882	18.6216193	2.0000000	73.0000000
TDS1	16	27806.06	6659.16	12320.00	36383.00
TDS2	0	.	.	.	.
TDS3	17	32532.00	3774.20	24036.00	37724.00
SS1	16	60.9375000	45.3923176	14.0000000	215.0000000
SS2	0	.	.	.	.
SS3	17	74.8235294	56.5068970	6.0000000	262.0000000
TS1	16	27867.00	6678.73	12360.00	36598.00
TS2	0	.	.	.	.
TS3	17	32607.88	3789.58	24086.00	37822.00
CHLOR_A1	15	6.6266667	7.2088702	0	26.2000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	16	111.9375000	11.7443249	92.0000000	130.0000000
ALK2	0	.	.	.	.
ALK3	17	112.1176471	9.3198870	90.0000000	126.0000000
SULFATE1	16	1053.63	340.6143225	347.0000000	1550.00
SULFATE2	0	.	.	.	.
SULFATE3	17	1253.24	203.5612713	831.0000000	1528.00
AMMONIA1	16	2.7062500	1.8677861	0.4000000	7.6000000
AMMONIA2	0	.	.	.	.
AMMONIA3	17	3.5647059	3.5836331	0.8000000	15.6000000
CALCIUM1	16	304.2500000	74.5399222	184.0000000	472.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	17	358.5882353	55.7483843	272.0000000	480.0000000
PHOSPHA1	16	0.6250000	0.4538722	0	1.5000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	17	1.0647059	1.5803248	0	6.8000000
T_PHOS1	16	1.8250000	1.5960368	0.5000000	6.5000000
T_PHOS2	0	.	.	.	.
T_PHOS3	17	2.7882353	3.2445883	0.4000000	13.3000000
SILICA1	16	0.7875000	0.6184658	0.1000000	2.5000000
SILICA2	0	.	.	.	.
SILICA3	17	0.7117647	0.5914837	0.1000000	2.3000000
NO3NO2_1	16	10.4750000	17.8544299	0	49.5000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	17	5.6764706	8.3663410	0	29.0000000
TKN1	14	25.8428571	19.1943387	3.2000000	59.7000000
TKN2	0	.	.	.	.
TKN3	16	15.8687500	15.7698328	0	54.4000000

----- STATION=473 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	60	9.3820333	1.5372846	2.7432000	12.1920000
DEPTH1	64	0.3797281	0.2264632	0.1000000	1.4000000
DEPTH2	3	2.9464000	0.1759764	2.7432000	3.0480000
DEPTH3	61	10.0027213	3.2894503	8.8392000	34.1376000
SAL1	64	24.7181250	5.7249745	11.8000000	34.9000000
SAL2	3	30.3333333	2.7300794	27.2000000	32.2000000
SAL3	60	31.3665000	3.5663293	18.1000000	38.2000000
OXYGEN1	61	8.9885246	2.5148292	4.6000000	15.5000000
OXYGEN2	3	3.3666667	2.7227437	0.3000000	5.5000000
OXYGEN3	61	4.8016393	2.8542069	0	10.1000000
TURBID1	61	8.4070492	14.7425822	0.5300000	77.0000000
TURBID2	3	9.3333333	4.5092498	5.0000000	14.0000000
TURBID3	58	11.3568966	13.2697137	1.0000000	80.0000000
TDS1	63	27451.94	6219.95	13494.00	37637.00
TDS2	2	35292.00	568.5138521	34890.00	35694.00
TDS3	60	34833.00	4581.53	20124.00	47802.00
SS1	63	26.5079365	36.8251637	0	262.0000000
SS2	2	3.0000000	4.2426407	0	6.0000000
SS3	60	37.2666667	40.7247339	0	236.0000000
TS1	63	27478.44	6226.06	13528.00	37640.00
TS2	2	35295.00	572.7564928	34890.00	35700.00
TS3	60	34868.10	4581.74	20156.00	47820.00
CHLOR_A1	62	7.5603226	8.0339403	0.4000000	41.8000000
CHLOR_A2	3	3.2333333	1.4571662	1.7000000	4.6000000
CHLOR_A3	34	3.3388235	3.6342110	0.4000000	21.6000000
ALK1	64	112.1718750	10.2160078	78.0000000	126.0000000
ALK2	3	119.3333333	2.3094011	118.0000000	122.0000000
ALK3	61	114.9508197	10.6417828	68.0000000	133.0000000
SULFATE1	63	1617.27	682.5064151	372.0000000	3576.00
SULFATE2	3	2065.67	82.1360660	1971.00	2118.00
SULFATE3	60	2057.73	711.6387597	735.0000000	3578.00
AMMONIA1	62	1.6364516	1.5935763	0	6.8000000
AMMONIA2	3	8.4666667	4.7721414	4.6000000	13.8000000
AMMONIA3	59	5.1752542	5.9579962	0.2000000	34.3000000
CALCIUM1	64	293.3750000	62.5397651	184.0000000	496.0000000
CALCIUM2	3	361.3333333	6.1101009	356.0000000	368.0000000
CALCIUM3	61	357.9672131	48.8460054	224.0000000	528.0000000
PHOSPHA1	62	0.3838710	0.2810540	0	1.1000000
PHOSPHA2	3	1.8000000	2.0808652	0.5000000	4.2000000
PHOSPHA3	59	1.2345763	1.4664305	0	8.6000000
T_PHOS1	62	3.4393548	6.6179792	0.1000000	51.3699999
T_PHOS2	3	3.9333333	3.1564748	1.5000000	7.5000000
T_PHOS3	61	4.7062295	7.4633366	0.1000000	54.1199999
SILICA1	63	0.4792063	0.4632644	0	2.7000000
SILICA2	3	0.6666667	0.5033223	0.2000000	1.2000000
SILICA3	60	0.6373333	0.6633195	0	3.6300000
NO3NO2_1	62	9.5396774	12.7082004	0	45.6000000
NO3NO2_2	3	2.7666667	4.3615746	0.1000000	7.8000000
NO3NO2_3	59	6.3111864	6.2693439	0	29.1600000
TKN1	62	44.3309677	31.9948237	0	156.1400000
TKN2	3	33.7000000	21.0516033	15.0000000	56.5000000
TKN3	60	42.4960000	30.6268544	0	122.8600000

----- STATION=474 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	57	9.4712561	1.6087103	2.7432000	11.8872000
DEPTH1	63	0.3766730	0.2317794	0	1.3000000
DEPTH2	3	2.9464000	0.4655897	2.4384000	3.3528000
DEPTH3	60	9.6530133	1.0266242	8.8392000	11.8872000
SAL1	62	24.8951613	5.5557212	12.5000000	36.2000000
SAL2	3	31.3666667	0.8621678	30.6000000	32.3000000
SAL3	58	30.8500000	5.2787395	1.9000000	40.8000000
OXYGEN1	61	9.2426230	2.7853461	3.8000000	17.0000000
OXYGEN2	3	3.5333333	2.4110855	1.0000000	5.8000000
OXYGEN3	59	4.9966102	2.7727719	0.1000000	10.0000000
TURBID1	60	8.0216667	15.5532120	0	88.0000000
TURBID2	3	10.3333333	4.1633320	7.0000000	15.0000000
TURBID3	57	11.0105263	10.8400001	0	49.0000000
TDS1	60	27829.85	6272.95	14558.00	40791.00
TDS2	2	35691.50	2153.14	34169.00	37214.00
TDS3	59	35005.31	4256.98	20600.00	45898.00
SS1	60	27.0000000	24.8070520	0	90.0000000
SS2	2	18.5000000	24.7487373	1.0000000	36.0000000
SS3	59	38.7966102	31.1839811	0	138.0000000
TS1	60	27856.87	6274.45	14608.00	40830.00
TS2	2	35710.00	2177.89	34170.00	37250.00
TS3	59	35044.10	4262.06	20600.00	45984.00
CHLOR_A1	59	7.6827119	8.1979446	0.5000000	47.5000000
CHLOR_A2	3	3.1333333	0.5033223	2.6000000	3.6000000
CHLOR_A3	32	3.7953594	4.1465783	0.7000000	22.2000000
ALK1	63	112.4285714	9.5878187	84.0000000	130.0000000
ALK2	3	120.6666667	3.0550505	118.0000000	124.0000000
ALK3	60	116.2333333	7.8683375	88.0000000	131.0000000
SULFATE1	62	1670.53	767.2071069	426.0000000	3767.00
SULFATE2	3	2154.67	111.5183094	2042.00	2265.00
SULFATE3	59	2031.39	681.1483209	920.0000000	3537.00
AMMONIA1	61	1.6224590	1.4964777	0	7.2000000
AMMONIA2	3	8.1000000	2.2068076	6.0000000	10.4000000
AMMONIA3	58	5.0655172	5.8368248	0	31.9000000
CALCIUM1	63	290.7301587	55.3176185	184.0000000	416.0000000
CALCIUM2	3	365.3333333	4.6188022	360.0000000	368.0000000
CALCIUM3	60	354.8666667	44.8400043	220.0000000	552.0000000
PHOSPHA1	61	0.4068852	0.2966454	0	1.4000000
PHOSPHA2	3	1.6000000	1.5620499	0.6000000	3.4000000
PHOSPHA3	58	1.2144828	1.4511232	0	8.4000000
T_PHOS1	62	3.4677419	7.1393549	0	55.1900000
T_PHOS2	3	3.7666667	2.0033306	1.5000000	5.3000000
T_PHOS3	60	4.6150000	7.1929746	0.1000000	51.8300000
SILICA1	62	0.4890323	0.5029510	0	2.6600000
SILICA2	3	0.5333333	0.4041452	0.1000000	0.9000000
SILICA3	59	0.6661017	0.6841028	0	3.5900000
NO3NO2_1	60	9.1418333	12.6808432	0	46.3000000
NO3NO2_2	3	3.5000000	5.8043087	0	10.2000000
NO3NO2_3	58	6.2886207	6.3074939	0	27.9600000
TKN1	62	43.0895161	31.6703928	0	137.9600000
TKN2	3	43.7000000	27.8533660	24.2000000	75.6000000
TKN3	60	39.7338333	30.8344900	0	121.2700000

----- STATION=475 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	58	9.5659793	1.4173866	2.7432000	11.2776000
DEPTH1	63	0.3974667	0.2669639	0.1000000	1.7000000
DEPTH2	3	2.8448000	0.3519527	2.4384000	3.0480000
DEPTH3	60	9.8109933	0.5824515	8.8392000	11.2776000
SAL1	62	24.9967742	5.7642356	12.2000000	35.2000000
SAL2	3	31.2666667	1.1590226	30.5000000	32.6000000
SAL3	59	31.2974576	3.5517939	18.1000000	38.5000000
OXYGEN1	61	9.2278689	2.7901094	3.4000000	16.9000000
OXYGEN2	3	3.6666667	3.0615900	0.2000000	6.0000000
OXYGEN3	60	4.9716667	2.7417112	0	10.0000000
TURBID1	59	8.2969492	14.8272499	0	86.0000000
TURBID2	3	15.3333333	6.6583281	11.0000000	23.0000000
TURBID3	57	11.9684211	11.9372191	1.0000000	56.0000000
TDS1	59	27974.36	6304.92	13172.00	37826.00
TDS2	2	35968.50	306.1772363	35752.00	36185.00
TDS3	59	35574.10	5656.90	21230.00	54286.00
SS1	59	31.3050847	36.7720163	0	220.0000000
SS2	2	16.5000000	12.0208153	8.0000000	25.0000000
SS3	59	41.3559322	41.1355047	0	240.0000000
TS1	61	27821.80	6345.37	13208.00	37840.00
TS2	2	35985.00	318.1980515	35760.00	36210.00
TS3	60	35615.43	5607.65	21230.00	54326.00
CHLOR_A1	61	7.4755738	8.8328175	0	55.0000000
CHLOR_A2	3	3.4666667	0.6429101	3.0000000	4.2000000
CHLOR_A3	31	4.2932258	6.2599246	0.6000000	30.8400000
ALK1	62	112.7741935	8.9578601	94.0000000	130.0000000
ALK2	3	123.3333333	6.1101009	118.0000000	130.0000000
ALK3	60	115.4500000	10.1504362	74.0000000	131.0000000
SULFATE1	61	1576.41	670.7401478	134.0000000	3421.00
SULFATE2	3	2221.67	108.5602751	2157.00	2347.00
SULFATE3	59	1985.34	708.3735526	735.0000000	3490.00
AMMONIA1	60	1.6696667	1.8248185	0	9.7400000
AMMONIA2	3	9.2333333	6.9342147	3.4000000	16.9000000
AMMONIA3	58	4.5989655	4.6558858	0	21.1000000
CALCIUM1	62	291.5483871	59.9326610	176.0000000	440.0000000
CALCIUM2	3	365.3333333	8.3266640	356.0000000	372.0000000
CALCIUM3	60	353.6666667	45.8045467	216.0000000	480.0000000
PHOSPHA1	60	0.3823333	0.2991591	0	1.4000000
PHOSPHA2	3	0.3333333	0.3055050	0	0.6000000
PHOSPHA3	58	1.2375862	1.2682912	0	5.9000000
T_PHOS1	61	3.5552459	7.1737857	0	54.1199999
T_PHOS2	3	5.7666667	4.9903240	1.9000000	11.4000000
T_PHOS3	60	4.3828333	6.1571645	0.1000000	44.4200000
SILICA1	61	0.4990164	0.4381313	0	2.1000000
SILICA2	3	0.6000000	0.6000000	0	1.2000000
SILICA3	59	0.6706780	0.7220848	0	3.5600000
NO3NO2_1	60	8.8198333	12.0152630	0	47.5000000
NO3NO2_2	3	3.1000000	5.0239427	0.1000000	8.9000000
NO3NO2_3	58	5.6339655	6.4391088	0	26.6900000
TKN1	62	46.7533871	36.0930104	3.8000000	151.6600000
TKN2	3	42.8000000	14.2565774	28.8000000	57.3000000
TKN3	59	41.7803390	32.8375630	0	123.0500000

----- STATION=476 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	17	9.3770824	1.1482175	8.2296000	11.2776000
DEPTH1	16	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	17	9.3770824	1.1482175	8.2296000	11.2776000
SAL1	16	25.4937500	6.1311738	11.8000000	33.1000000
SAL2	0	.	.	.	.
SAL3	16	30.6750000	3.4169187	24.3000000	38.7000000
OXYGEN1	16	9.6562500	2.5721505	6.5000000	14.4000000
OXYGEN2	0	.	.	.	.
OXYGEN3	17	6.0470588	2.5075181	0.4000000	9.4000000
TURBID1	16	21.1250000	21.1214741	2.0000000	71.0000000
TURBID2	0	.	.	.	.
TURBID3	17	24.2352941	22.1317911	3.0000000	80.0000000
TDS1	15	27969.20	6922.83	13804.00	35926.00
TDS2	0	.	.	.	.
TDS3	17	33260.82	3941.71	26168.00	42026.00
SS1	16	61.0000000	52.0922259	10.0000000	232.0000000
SS2	0	.	.	.	.
SS3	17	71.0588235	50.1553469	4.0000000	226.0000000
TS1	15	28030.80	6949.51	13848.00	36016.00
TS2	0	.	.	.	.
TS3	17	33331.88	3952.73	26214.00	42084.00
CHLOR_A1	16	7.3875000	8.5749927	0.3000000	32.4000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	16	109.7500000	10.2274141	92.0000000	124.0000000
ALK2	0	.	.	.	.
ALK3	17	112.4705882	9.5336093	92.0000000	131.0000000
SULFATE1	16	1024.44	313.1968431	414.0000000	1521.00
SULFATE2	0	.	.	.	.
SULFATE3	17	1286.82	227.0884286	790.0000000	1617.00
AMMONIA1	16	2.0000000	1.6321765	0	5.8000000
AMMONIA2	0	.	.	.	.
AMMONIA3	17	4.2764706	5.9503707	0.4000000	25.0000000
CALCIUM1	16	295.2500000	60.4025386	200.0000000	392.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	17	343.2941176	63.5174825	204.0000000	512.0000000
PHOSPHA1	16	0.6250000	0.3958114	0.1000000	1.4000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	17	1.2588235	1.7029602	0	7.2000000
T_PHOS1	16	2.0125000	1.5019432	0.8000000	6.9000000
T_PHOS2	0	.	.	.	.
T_PHOS3	17	2.9117647	3.6806729	0.6000000	15.6000000
SILICA1	16	0.7062500	0.6201814	0.1000000	2.6000000
SILICA2	0	.	.	.	.
SILICA3	17	0.5352941	0.4910972	0.1000000	1.7000000
NO3NO2_1	16	9.1625000	15.1745346	0	48.5000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	17	4.7411765	7.0681556	0	21.0000000
TKN1	16	25.4375000	17.6921404	4.5000000	62.9000000
TKN2	0	.	.	.	.
TKN3	17	16.2000000	11.8279859	2.2000000	48.3000000

----- STATION=477 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	8	16.7259000	0.7365374	15.8496000	17.6784000
DEPTH1	7	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	8	16.7259000	0.7365374	15.8496000	17.6784000
SAL1	5	29.5000000	2.9949958	25.0000000	32.7000000
SAL2	0	.	.	.	.
SAL3	5	34.0000000	0.9924717	32.8000000	35.3000000
OXYGEN1	6	8.9166667	2.7852588	4.8000000	11.9000000
OXYGEN2	0	.	.	.	.
OXYGEN3	6	5.5833333	3.5616944	0.4000000	11.3000000
TURBID1	7	10.8571429	11.7108009	0	36.0000000
TURBID2	0	.	.	.	.
TURBID3	8	18.3750000	13.7314810	4.0000000	49.0000000
TDS1	7	32736.00	3844.01	27386.00	38016.00
TDS2	0	.	.	.	.
TDS3	8	36666.75	1569.22	33912.00	38356.00
SS1	7	63.7142857	31.1004517	30.0000000	116.0000000
SS2	0	.	.	.	.
SS3	8	60.5000000	40.4510286	8.0000000	106.0000000
TS1	7	32799.71	3850.19	27452.00	38078.00
TS2	0	.	.	.	.
TS3	8	36727.25	1566.00	33930.00	38406.00
CHLOR_A1	3	9.3666667	11.7627945	0.1000000	22.6000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	7	110.7142857	9.3935135	96.0000000	122.0000000
ALK2	0	.	.	.	.
ALK3	8	114.8750000	9.9919611	102.0000000	130.0000000
SULFATE1	7	1247.14	194.5811130	915.0000000	1432.00
SULFATE2	0	.	.	.	.
SULFATE3	8	1310.50	353.0018211	475.0000000	1550.00
AMMONIA1	7	2.5285714	2.7873011	0	7.8000000
AMMONIA2	0	.	.	.	.
AMMONIA3	8	5.8875000	8.7805691	0.8000000	27.2000000
CALCIUM1	7	352.5714286	24.7039615	304.0000000	376.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	8	506.5000000	331.5896776	364.0000000	1320.00
PHOSPHA1	7	2.4714286	5.7488301	0.1000000	15.5000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	8	0.9125000	0.8201698	0.3000000	2.8000000
T_PHOS1	7	1.5571429	1.6811277	0.3000000	5.2000000
T_PHOS2	0	.	.	.	.
T_PHOS3	8	2.8875000	1.6461535	0.5000000	5.2000000
SILICA1	7	0.4571429	0.3207135	0.1000000	1.0000000
SILICA2	0	.	.	.	.
SILICA3	8	0.9375000	0.6254998	0.3000000	2.2000000
NO3NO2_1	7	0.5571429	0.7253899	0	1.7000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	8	0.1000000	0.2138090	0	0.6000000
TKN1	7	7.6714286	6.4585123	0	20.1000000
TKN2	0	.	.	.	.
TKN3	8	6.5500000	3.0519315	1.8000000	10.5000000

----- STATION=478 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	7	17.0252571	0.9216286	16.1544000	18.2880000
DEPTH1	7	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	7	17.0252571	0.9216286	16.1544000	18.2880000
SAL1	5	28.3600000	3.4997143	23.7000000	32.7000000
SAL2	0	.	.	.	.
SAL3	5	33.4400000	1.9969977	31.5000000	36.7000000
OXYGEN1	6	9.0000000	3.1899843	5.5000000	13.2000000
OXYGEN2	0	.	.	.	.
OXYGEN3	6	5.9333333	3.8045587	0.2000000	12.1000000
TURBID1	6	10.0000000	10.9544512	4.0000000	32.0000000
TURBID2	0	.	.	.	.
TURBID3	6	15.0000000	6.1644140	8.0000000	26.0000000
TDS1	6	34852.67	11681.96	25918.00	57758.00
TDS2	0	.	.	.	.
TDS3	7	36616.86	1888.64	32746.00	38522.00
SS1	6	64.3333333	35.1776444	0	94.0000000
SS2	0	.	.	.	.
SS3	7	68.8571429	29.8854958	22.0000000	104.0000000
TS1	6	34917.00	11698.94	25990.00	57848.00
TS2	0	.	.	.	.
TS3	7	36694.29	1881.36	32848.00	38586.00
CHLOR_A1	4	4.7000000	7.5113248	0	15.9000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	6	106.6666667	8.5479042	92.0000000	116.0000000
ALK2	0	.	.	.	.
ALK3	7	113.2857143	10.2423026	98.0000000	129.0000000
SULFATE1	6	1188.00	201.7463754	900.0000000	1369.00
SULFATE2	0	.	.	.	.
SULFATE3	7	1429.29	84.0391065	1305.00	1528.00
AMMONIA1	6	3.3500000	3.2995454	0	8.8000000
AMMONIA2	0	.	.	.	.
AMMONIA3	7	7.0428571	11.9892809	0	33.9000000
CALCIUM1	6	336.6666667	38.5676894	272.0000000	368.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	7	394.8571429	49.5695759	356.0000000	504.0000000
PHOSPHA1	6	0.2166667	0.1169045	0.1000000	0.4000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	7	1.3285714	1.6408476	0.2000000	4.1000000
T_PHOS1	6	1.8333333	1.4459138	0.5000000	4.1000000
T_PHOS2	0	.	.	.	.
T_PHOS3	7	3.1571429	2.3294185	1.2000000	7.4000000
SILICA1	6	0.4333333	0.1032796	0.3000000	0.6000000
SILICA2	0	.	.	.	.
SILICA3	6	0.9000000	0.8944272	0.4000000	2.7000000
NO3NO2_1	6	0.6500000	1.2802344	0	3.2000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	7	0.4571429	0.7020379	0	1.7000000
TKN1	6	6.8833333	5.5455989	1.4000000	14.8000000
TKN2	0	.	.	.	.
TKN3	7	6.7857143	4.7614524	0.6000000	13.3000000

----- STATION=479 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	8	27.0891000	1.4429219	24.9936000	29.8704000
DEPTH1	7	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	8	27.0891000	1.4429219	24.9936000	29.8704000
SAL1	5	29.3200000	2.7644168	25.5000000	31.7000000
SAL2	0	.	.	.	.
SAL3	4	34.6500000	1.3228757	33.6000000	36.5000000
OXYGEN1	7	8.9857143	1.8658587	6.3000000	11.7000000
OXYGEN2	0	.	.	.	.
OXYGEN3	7	6.6857143	1.6577380	5.0000000	10.0000000
TURBID1	7	7.4285714	2.7602622	4.0000000	12.0000000
TURBID2	0	.	.	.	.
TURBID3	8	16.7500000	5.7507763	12.0000000	26.0000000
TDS1	7	32403.43	3517.48	26950.00	37050.00
TDS2	0	.	.	.	.
TDS3	7	36916.00	2131.71	32478.00	38844.00
SS1	7	53.7142857	30.6904670	10.0000000	86.0000000
SS2	0	.	.	.	.
SS3	7	66.2857143	37.3350340	30.0000000	128.0000000
TS1	7	32457.14	3524.03	26960.00	37124.00
TS2	0	.	.	.	.
TS3	7	36982.29	2148.11	32524.00	38972.00
CHLOR_A1	5	7.0800000	7.7354379	0.9000000	20.4000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	7	110.2857143	8.1998839	94.0000000	118.0000000
ALK2	0	.	.	.	.
ALK3	8	109.3750000	9.0386077	91.0000000	120.0000000
SULFATE1	7	1377.57	143.1023610	1146.00	1602.00
SULFATE2	0	.	.	.	.
SULFATE3	8	1519.13	154.0115371	1245.00	1750.00
AMMONIA1	7	3.1142857	2.9852016	0.4000000	8.5000000
AMMONIA2	0	.	.	.	.
AMMONIA3	8	1.9125000	1.2391673	0.6000000	4.3000000
CALCIUM1	7	349.1428571	40.1805449	304.0000000	424.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	8	393.5000000	57.3684831	320.0000000	516.0000000
PHOSPHA1	7	0.3714286	0.2927700	0.1000000	0.9000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	8	0.6500000	0.4472136	0.3000000	1.5000000
T_PHOS1	7	1.4285714	0.8538429	0.5000000	3.0000000
T_PHOS2	0	.	.	.	.
T_PHOS3	8	1.6500000	0.8585702	0.7000000	3.0000000
SILICA1	7	0.5142857	0.3436499	0.1000000	1.1000000
SILICA2	0	.	.	.	.
SILICA3	8	0.6125000	0.1642081	0.4000000	0.9000000
NO3NO2_1	7	0.2714286	0.7181325	0	1.9000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	8	0.0375000	0.0517549	0	0.1000000
TKN1	7	5.8571429	4.2964548	1.6000000	13.6000000
TKN2	0	.	.	.	.
TKN3	8	5.8500000	4.2078159	1.4000000	14.9000000

----- STATION=480 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	8	27.7368000	1.3434930	26.2128000	30.1752000
DEPTH1	7	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	8	27.7368000	1.3434930	26.2128000	30.1752000
SAL1	5	29.3600000	2.8745434	25.6000000	32.1000000
SAL2	0	.	.	.	.
SAL3	4	37.9250000	3.1983068	34.5000000	42.2000000
OXYGEN1	7	8.8285714	2.8164483	4.4000000	12.0000000
OXYGEN2	0	.	.	.	.
OXYGEN3	7	5.9000000	4.0024992	0.2000000	13.1000000
TURBID1	7	8.5714286	3.5989416	4.0000000	12.0000000
TURBID2	0	.	.	.	.
TURBID3	8	12.2500000	4.8329228	8.0000000	22.0000000
TDS1	7	32229.43	3512.17	26818.00	36850.00
TDS2	0	.	.	.	.
TDS3	8	36425.25	2443.57	31098.00	38626.00
SS1	7	52.5714286	30.4568391	24.0000000	90.0000000
SS2	0	.	.	.	.
SS3	8	61.0000000	29.4521404	32.0000000	102.0000000
TS1	7	32282.00	3521.21	26846.00	36936.00
TS2	0	.	.	.	.
TS3	8	36486.25	2454.25	31136.00	38660.00
CHLOR_A1	5	4.8200000	5.6521677	0.5000000	13.8000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	7	108.1428571	5.0803075	98.0000000	113.0000000
ALK2	0	.	.	.	.
ALK3	8	111.6250000	7.4053552	100.0000000	122.0000000
SULFATE1	7	1390.29	127.7663418	1178.00	1602.00
SULFATE2	0	.	.	.	.
SULFATE3	8	1493.25	128.7053667	1245.00	1675.00
AMMONIA1	7	1.3142857	1.0976165	0.2000000	2.9000000
AMMONIA2	0	.	.	.	.
AMMONIA3	8	3.0125000	4.6498656	0.5000000	14.3000000
CALCIUM1	7	343.4285714	44.0259664	276.0000000	408.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	8	381.0000000	43.0149476	308.0000000	460.0000000
PHOSPHA1	7	0.2714286	0.1496026	0	0.4000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	8	0.6500000	0.5371884	0.2000000	1.9000000
T_PHOS1	7	1.0571429	0.5798193	0.5000000	2.2000000
T_PHOS2	0	.	.	.	.
T_PHOS3	8	1.7375000	1.3627048	0.2000000	4.2000000
SILICA1	7	0.4714286	0.2288689	0.1000000	0.8000000
SILICA2	0	.	.	.	.
SILICA3	8	0.7250000	0.6296257	0.1000000	2.1000000
NO3NO2_1	7	0.2714286	0.4270608	0	1.1000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	8	0.3375000	0.9148575	0	2.6000000
TKN1	7	4.0285714	4.2586047	0	11.8000000
TKN2	0	.	.	.	.
TKN3	8	4.1375000	5.2690301	0.1000000	14.7000000

----- STATION=481 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	57	32.6150947	4.5657786	9.4488000	34.7472000
DEPTH1	61	0.4453738	0.3565432	0.0100000	1.9000000
DEPTH2	30	15.8090133	2.7215859	4.8768000	17.3000000
DEPTH3	58	33.5610000	0.9147355	30.1700000	34.7472000
SAL1	58	25.9803448	5.6834564	9.3000000	36.0000000
SAL2	30	34.7940000	1.5229884	31.0800000	37.3000000
SAL3	55	35.6170909	1.2413652	30.7000000	37.7000000
OXYGEN1	60	9.0516667	2.2849168	5.5000000	16.9000000
OXYGEN2	29	5.9000000	1.6089038	2.6000000	8.8000000
OXYGEN3	57	5.1912281	3.0296912	0.4000000	16.2000000
TURBID1	57	4.0136842	5.3036095	0	30.0000000
TURBID2	27	0.7770370	0.6500048	0	3.0000000
TURBID3	54	5.9777778	8.0562098	0	49.0000000
TDS1	59	29487.83	6667.30	10608.00	42005.00
TDS2	29	39031.21	2448.16	31706.00	42562.00
TDS3	57	39978.89	3823.40	27674.00	60560.00
SS1	59	22.7796610	24.2977704	0	102.0000000
SS2	29	16.7241379	18.6717827	0	50.0000000
SS3	57	31.1754386	28.3196820	0	106.0000000
TS1	60	29619.33	6665.81	10614.00	42010.00
TS2	29	39049.66	2448.59	31710.00	42570.00
TS3	58	39931.72	3839.73	27690.00	60620.00
CHLOR_A1	60	6.9398333	8.7403270	0	33.3000000
CHLOR_A2	30	0.9760000	2.1170256	0	11.9700000
CHLOR_A3	31	0.8751613	1.3807652	0	7.4400000
ALK1	61	113.3934426	7.1374101	96.0000000	127.0000000
ALK2	30	119.2666667	3.7225625	108.0000000	126.0000000
ALK3	58	124.4655172	38.9521594	98.0000000	412.0000000
SULFATE1	61	1736.80	663.2403491	455.0000000	3464.00
SULFATE2	30	2618.13	468.5724272	1736.00	3604.00
SULFATE3	58	2348.33	755.6733117	860.0000000	5313.00
AMMONIA1	59	1.0671186	0.9850907	0	4.2600000
AMMONIA2	28	1.4007143	2.5622645	0	13.7000000
AMMONIA3	56	1.3632143	1.6650931	0	9.5000000
CALCIUM1	61	311.8032787	62.0856451	136.0000000	480.0000000
CALCIUM2	30	392.2666667	29.9872770	272.0000000	440.0000000
CALCIUM3	58	431.7931034	222.4084088	276.0000000	2040.00
PHOSPHA1	59	0.3055932	0.2557293	0	1.1700000
PHOSPHA2	28	0.3107143	0.2866399	0	1.0300000
PHOSPHA3	56	0.6625000	0.5348823	0	2.8000000
T_PHOS1	60	3.2073333	7.0494889	0	53.5100000
T_PHOS2	30	4.1570000	5.1583425	0	23.8699999
T_PHOS3	57	3.1463158	4.6453870	0	26.7000000
SILICA1	60	0.4041667	0.3994415	0	1.7000000
SILICA2	29	0.1889655	0.2080753	0	1.0000000
SILICA3	57	0.4454386	0.4231095	0	1.8600000
NO3NO2_1	59	10.7091525	17.4492780	0	86.5000000
NO3NO2_2	28	3.7714286	3.9054802	0	15.5000000
NO3NO2_3	56	5.9376786	6.0739548	0	33.4200000
TKN1	60	39.5306667	29.0868603	0	139.0500000
TKN2	29	40.1586207	29.3534495	0	111.8000000
TKN3	57	30.2866667	26.3633163	0	109.2000000

----- STATION=482 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	56	32.9360357	4.7043278	9.4488000	38.5000000
DEPTH1	61	0.3747508	0.2136794	0.1000000	1.2000000
DEPTH2	31	15.8051226	3.3124692	4.8768000	18.9000000
DEPTH3	58	33.7604897	1.3798578	27.0500000	38.5000000
SAL1	59	25.5813559	6.0800934	10.9000000	36.4000000
SAL2	31	34.6287097	1.7113576	30.9000000	37.5000000
SAL3	57	35.4580702	2.0217085	26.9000000	42.2000000
OXYGEN1	57	9.0824561	2.8848200	1.6000000	18.0000000
OXYGEN2	30	6.0166667	1.5842073	1.8000000	8.8000000
OXYGEN3	57	5.0192982	2.0887828	0.5000000	12.3000000
TURBID1	57	4.5073684	8.8961793	0	64.0000000
TURBID2	28	0.9792857	1.3444782	0	7.0000000
TURBID3	53	8.0415094	10.7699803	0	59.0000000
TDS1	60	28919.52	7055.38	11862.00	45081.00
TDS2	30	39835.87	3984.24	34375.00	56786.00
TDS3	56	40093.63	5487.98	24169.00	74170.00
SS1	60	20.6166667	18.6412079	0	66.0000000
SS2	30	24.8000000	51.9126587	0	286.0000000
SS3	56	39.3035714	42.3208178	1.0000000	283.0000000
TS1	60	28942.13	7059.37	11872.00	45120.00
TS2	30	39860.67	3983.15	34410.00	56790.00
TS3	57	40061.89	5470.33	24170.00	74222.00
CHLOR_A1	57	8.4808772	10.2168739	0	39.4000000
CHLOR_A2	31	0.5045161	0.3488728	0.1000000	1.6000000
CHLOR_A3	31	0.8970968	1.6084137	0.1000000	9.2000000
ALK1	61	111.6721311	16.4435614	0	125.0000000
ALK2	31	119.4838710	3.9822185	110.0000000	126.0000000
ALK3	57	119.8596491	4.4055103	108.0000000	129.0000000
SULFATE1	61	1721.98	677.5519289	516.0000000	3372.00
SULFATE2	31	2588.39	438.2905184	1740.00	3511.00
SULFATE3	57	2271.46	639.5328672	1015.00	3616.00
AMMONIA1	59	1.3394915	1.3757511	0	8.0000000
AMMONIA2	29	0.9841379	0.8309354	0	3.3100000
AMMONIA3	54	1.5453704	1.9710085	0	11.6000000
CALCIUM1	61	304.9836066	65.3019887	136.0000000	464.0000000
CALCIUM2	31	399.7419355	24.5912827	336.0000000	456.0000000
CALCIUM3	57	404.9824561	58.8036962	260.0000000	728.0000000
PHOSPHA1	59	0.3205085	0.3356590	0	1.4000000
PHOSPHA2	29	0.2948276	0.2612418	0	1.1000000
PHOSPHA3	55	0.6389091	0.5127835	0	2.7000000
T_PHOS1	60	3.1985000	6.7195081	0	50.8300000
T_PHOS2	31	4.6296774	5.7491463	0	24.9000000
T_PHOS3	56	3.1739286	4.0800712	0	21.1900000
SILICA1	59	0.4457627	0.4525567	0	1.7000000
SILICA2	30	0.1886667	0.2816911	0	1.4000000
SILICA3	57	0.3957895	0.3991506	0	2.1700000
NO3NO2_1	58	11.2332759	17.0564476	0	72.9600000
NO3NO2_2	29	3.3937931	3.3960938	0.1000000	11.8000000
NO3NO2_3	56	5.7250000	6.1162856	0	35.3600000
TKN1	59	44.7047458	39.9137487	0	213.1400000
TKN2	31	36.1312903	28.1013486	0	94.3100000
TKN3	57	29.1138596	27.2979736	0	128.7400000

----- STATION=483 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	7	0.9579429	0.2742394	0.6096000	1.5240000
DEPTH1	6	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	7	0.9579429	0.2742394	0.6096000	1.5240000
SAL1	0	.	.	.	.
SAL2	0	.	.	.	.
SAL3	7	0.2428571	0.2225395	0	0.6000000
OXYGEN1	0	.	.	.	.
OXYGEN2	0	.	.	.	.
OXYGEN3	7	4.0428571	1.9518001	2.0000000	7.9000000
TURBID1	0	.	.	.	.
TURBID2	0	.	.	.	.
TURBID3	7	117.1428571	56.4193483	54.0000000	206.0000000
TDS1	0	.	.	.	.
TDS2	0	.	.	.	.
TDS3	7	358.5714286	172.4208583	64.0000000	552.0000000
SS1	0	.	.	.	.
SS2	0	.	.	.	.
SS3	7	85.7142857	49.5503592	0	150.0000000
TS1	0	.	.	.	.
TS2	0	.	.	.	.
TS3	7	444.2857143	188.0724278	118.0000000	674.0000000
CHLOR_A1	6	31.0333333	37.6271002	8.6000000	106.8000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	0	.	.	.	.
ALK2	0	.	.	.	.
ALK3	7	66.5714286	28.8435847	28.0000000	113.0000000
SULFATE1	0	.	.	.	.
SULFATE2	0	.	.	.	.
SULFATE3	7	10.2857143	13.7442629	0	32.0000000
AMMONIA1	0	.	.	.	.
AMMONIA2	0	.	.	.	.
AMMONIA3	7	6.0428571	3.4394075	0.4000000	9.3000000
CALCIUM1	0	.	.	.	.
CALCIUM2	0	.	.	.	.
CALCIUM3	6	26.0000000	13.7985506	8.0000000	40.0000000
PHOSPHA1	0	.	.	.	.
PHOSPHA2	0	.	.	.	.
PHOSPHA3	7	6.3285714	6.2972783	1.6000000	19.8000000
T_PHOS1	0	.	.	.	.
T_PHOS2	0	.	.	.	.
T_PHOS3	7	18.7714286	17.8512104	6.4000000	57.3000000
SILICA1	0	.	.	.	.
SILICA2	0	.	.	.	.
SILICA3	7	5.4857143	2.8186454	1.3000000	9.8000000
NO3NO2_1	0	.	.	.	.
NO3NO2_2	0	.	.	.	.
NO3NO2_3	7	1.5285714	2.6215226	0	7.4000000
TKN1	0	.	.	.	.
TKN2	0	.	.	.	.
TKN3	7	30.1142857	20.1997878	8.1000000	67.8000000

----- STATION=484 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	51	32.4510196	4.8017679	9.7536000	35.3568000
DEPTH1	60	0.4306167	0.3342189	0.1000000	1.6000000
DEPTH2	31	15.3799484	3.2692449	4.5720000	17.6000000
DEPTH3	56	33.4016714	1.3701210	26.2000000	35.3568000
SAL1	58	26.8036207	5.6902628	12.6000000	36.3000000
SAL2	31	34.5929032	2.2473350	28.1000000	37.1000000
SAL3	53	35.6073585	1.6359920	27.9000000	37.5000000
OXYGEN1	59	8.5169492	2.3229850	3.1000000	14.3000000
OXYGEN2	30	6.1900000	1.5554908	1.5000000	8.9000000
OXYGEN3	56	4.9589286	2.2763429	0.5000000	11.2000000
TURBID1	55	3.9610909	8.9636810	0	65.0000000
TURBID2	28	1.5328571	3.5767457	0	19.0000000
TURBID3	52	7.4896154	10.1525019	0	54.0000000
TDS1	57	30617.33	6762.84	13268.00	44856.00
TDS2	30	38364.60	4797.62	21772.00	42944.00
TDS3	54	40103.91	5820.30	27352.00	74968.00
SS1	57	22.7017544	24.8315503	0	94.0000000
SS2	30	18.1666667	20.9022080	0	76.0000000
SS3	55	36.0181818	26.9866160	3.0000000	128.0000000
TS1	58	30729.59	6744.37	13278.00	44896.00
TS2	30	38397.00	4810.45	21780.00	43020.00
TS3	55	40065.49	5790.14	27400.00	75022.00
CHLOR_A1	56	5.7773214	8.2254210	0	31.1500000
CHLOR_A2	29	0.9003448	1.4636341	0.0800000	7.5000000
CHLOR_A3	30	0.8406667	1.4882087	0.1000000	8.1000000
ALK1	59	114.2711864	6.8602566	100.0000000	128.0000000
ALK2	31	119.1935484	5.0755581	100.0000000	126.0000000
ALK3	56	118.5535714	6.6028083	91.0000000	126.0000000
SULFATE1	58	1822.95	658.8924631	608.0000000	3478.00
SULFATE2	31	2567.16	579.7847932	1130.00	3595.00
SULFATE3	56	2347.86	631.1332788	987.0000000	3653.00
AMMONIA1	56	1.1485714	1.1406082	0	5.6000000
AMMONIA2	29	1.5144828	2.8668519	0	13.8300000
AMMONIA3	53	1.1058491	1.3446238	0	7.8000000
CALCIUM1	59	318.3050847	62.3945329	152.0000000	472.0000000
CALCIUM2	31	388.2580645	43.6829240	228.0000000	436.0000000
CALCIUM3	56	399.9107143	62.3154079	280.0000000	744.0000000
PHOSPHA1	57	0.3264912	0.4678885	0	2.3000000
PHOSPHA2	29	0.2496552	0.2407797	0	1.1000000
PHOSPHA3	54	0.6818519	0.5139161	0	2.9000000
T_PHOS1	58	2.8889655	6.8409499	0	50.8300000
T_PHOS2	31	3.9764516	5.0209558	0	25.3900000
T_PHOS3	55	3.1729091	4.5430149	0	23.0000000
SILICA1	58	0.3741379	0.3998203	0	1.4700000
SILICA2	30	0.1586667	0.2304678	0	1.1900000
SILICA3	55	0.4603636	0.5103665	0	2.5000000
NO3NO2_1	57	8.8161404	13.3904361	0	66.5000000
NO3NO2_2	29	2.9568966	3.5915676	0	12.1000000
NO3NO2_3	54	5.7783333	5.7939271	0	30.4900000
TKN1	59	38.9033898	30.1092789	0	119.6500000
TKN2	31	38.6748387	30.0183328	0	120.5000000
TKN3	56	29.6923214	25.4071780	0	89.3400000

----- STATION=485 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	14	36.6413143	1.0638052	34.4424000	38.4048000
DEPTH1	14	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	14	36.6413143	1.0638052	34.4424000	38.4048000
SAL1	13	28.1615385	4.3068818	16.3000000	32.5000000
SAL2	0	.	.	.	.
SAL3	12	34.4833333	2.4221828	28.1000000	38.1000000
OXYGEN1	14	8.9285714	1.6958903	6.5000000	11.4000000
OXYGEN2	0	.	.	.	.
OXYGEN3	14	6.2857143	2.2218693	2.5000000	11.3000000
TURBID1	13	8.8461538	13.6799498	0	51.0000000
TURBID2	0	.	.	.	.
TURBID3	13	9.0000000	11.3798067	0	42.0000000
TDS1	14	31178.29	4405.15	19378.00	35534.00
TDS2	0	.	.	.	.
TDS3	14	38779.43	842.5249336	37250.00	40008.00
SS1	14	73.0000000	142.5261110	0	562.0000000
SS2	0	.	.	.	.
SS3	14	66.7142857	23.7889068	32.0000000	128.0000000
TS1	14	31251.29	4452.99	19380.00	36096.00
TS2	0	.	.	.	.
TS3	14	38833.57	838.7140995	37296.00	40136.00
CHLOR_A1	12	4.6166667	5.7740538	0	17.0000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	14	111.8571429	8.6723002	90.0000000	120.0000000
ALK2	0	.	.	.	.
ALK3	14	112.0714286	20.7344540	42.0000000	126.0000000
SULFATE1	14	1278.36	257.1203272	640.0000000	1763.00
SULFATE2	0	.	.	.	.
SULFATE3	14	1619.14	137.1001078	1400.00	1970.00
AMMONIA1	14	1.4214286	1.0692762	0	3.2000000
AMMONIA2	0	.	.	.	.
AMMONIA3	14	1.6642857	2.1406710	0.1000000	8.3000000
CALCIUM1	14	347.4285714	71.4139765	272.0000000	552.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	14	418.2857143	107.2476850	336.0000000	752.0000000
PHOSPHA1	14	0.3285714	0.2524604	0	0.9000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	14	0.3785714	0.3423416	0	1.1000000
T_PHOS1	13	0.7538462	0.4313069	0	1.4000000
T_PHOS2	0	.	.	.	.
T_PHOS3	13	0.8692308	1.0980169	0	3.3000000
SILICA1	14	0.4357143	0.3455367	0	1.0000000
SILICA2	0	.	.	.	.
SILICA3	14	0.3500000	0.4363309	0	1.6000000
NO3NO2_1	14	7.9642857	12.9523747	0	43.0000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	14	2.9142857	4.0699380	0	13.3000000
TKN1	14	18.1428571	12.9185445	0.8000000	35.5000000
TKN2	0	.	.	.	.
TKN3	14	12.6214286	11.6150551	0	34.1000000

----- STATION=486 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	14	34.5948000	1.2059394	32.9184000	37.7952000
DEPTH1	14	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	14	34.6165714	1.2692517	32.9184000	38.1000000
SAL1	13	27.3076923	5.7662035	13.8000000	32.7000000
SAL2	0	.	.	.	.
SAL3	10	33.9600000	3.0310248	28.0000000	38.1000000
OXYGEN1	14	9.1142857	2.6752015	4.1000000	14.4000000
OXYGEN2	0	.	.	.	.
OXYGEN3	14	6.1857143	2.4669686	1.6000000	10.9000000
TURBID1	13	9.2307692	11.3662794	0	42.0000000
TURBID2	0	.	.	.	.
TURBID3	12	9.8333333	8.6322159	2.0000000	30.0000000
TDS1	14	29981.00	6004.16	16624.00	35924.00
TDS2	0	.	.	.	.
TDS3	12	38206.83	1929.65	33376.00	40872.00
SS1	14	161.5714286	402.3088584	0	1542.00
SS2	0	.	.	.	.
SS3	12	65.3333333	53.7085288	16.0000000	202.0000000
TS1	14	30142.57	6109.12	16628.00	36170.00
TS2	0	.	.	.	.
TS3	13	38416.77	1941.27	33394.00	41074.00
CHLOR_A1	13	5.2000000	8.9342972	0	32.8000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	14	111.2857143	6.7758459	98.0000000	122.0000000
ALK2	0	.	.	.	.
ALK3	13	116.4615385	4.2547108	108.0000000	124.0000000
SULFATE1	14	1248.64	324.1819544	535.0000000	1763.00
SULFATE2	0	.	.	.	.
SULFATE3	13	1608.92	169.9041208	1305.00	1967.00
AMMONIA1	14	1.6785714	1.2141338	0.2000000	3.7000000
AMMONIA2	0	.	.	.	.
AMMONIA3	13	1.1076923	0.7146812	0.4000000	2.6000000
CALCIUM1	14	332.0000000	65.3511226	200.0000000	472.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	13	424.0000000	86.2399753	340.0000000	664.0000000
PHOSPHA1	14	0.2928571	0.2164905	0	0.7000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	13	0.3153846	0.3210560	0	1.0000000
T_PHOS1	13	0.8153846	0.4298181	0	1.6000000
T_PHOS2	0	.	.	.	.
T_PHOS3	12	0.7083333	0.5728054	0	2.0000000
SILICA1	14	0.4428571	0.3735779	0	1.2000000
SILICA2	0	.	.	.	.
SILICA3	13	0.3153846	0.2853248	0	0.8000000
NO3NO2_1	14	12.4571429	25.2993680	0	88.9000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	13	2.8384615	3.0332981	0	9.0000000
TKN1	14	18.5285714	16.3547889	0	44.0000000
TKN2	0	.	.	.	.
TKN3	13	11.8153846	11.0951826	0	29.7000000

----- STATION=487 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	5	12.8016000	0	12.8016000	12.8016000
DEPTH1	5	0.3048000	0	0.3048000	0.3048000
DEPTH2	0	.	.	.	.
DEPTH3	5	12.8016000	0	12.8016000	12.8016000
SAL1	5	25.1000000	7.8625696	12.5000000	32.3000000
SAL2	0	.	.	.	.
SAL3	4	30.5250000	1.7114808	28.2000000	32.3000000
OXYGEN1	5	9.8600000	2.7636932	6.8000000	14.1000000
OXYGEN2	0	.	.	.	.
OXYGEN3	5	7.5600000	1.3315405	6.0000000	8.9000000
TURBID1	5	23.0000000	30.5859445	3.0000000	73.0000000
TURBID2	0	.	.	.	.
TURBID3	5	21.8000000	19.6519719	4.0000000	48.0000000
TDS1	5	25449.20	9603.46	13944.00	36616.00
TDS2	0	.	.	.	.
TDS3	5	31324.00	7457.04	18410.00	37210.00
SS1	5	90.0000000	96.2600644	42.0000000	262.0000000
SS2	0	.	.	.	.
SS3	5	95.2000000	83.0132520	36.0000000	240.0000000
TS1	5	25539.20	9664.83	13988.00	36878.00
TS2	0	.	.	.	.
TS3	5	31419.20	7497.57	18458.00	37450.00
CHLOR_A1	5	8.9800000	11.0991892	1.6000000	28.0000000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	5	114.4000000	9.4233752	100.0000000	122.0000000
ALK2	0	.	.	.	.
ALK3	5	118.6000000	3.7148351	112.0000000	121.0000000
SULFATE1	5	1169.80	497.6351073	423.0000000	1617.00
SULFATE2	0	.	.	.	.
SULFATE3	5	1314.60	411.0636204	646.0000000	1652.00
AMMONIA1	5	1.7800000	1.0848963	0.5000000	3.5000000
AMMONIA2	0	.	.	.	.
AMMONIA3	5	2.2800000	0.7791020	1.4000000	3.3000000
CALCIUM1	5	321.6000000	51.9692217	264.0000000	400.0000000
CALCIUM2	0	.	.	.	.
CALCIUM3	5	353.6000000	26.1686836	320.0000000	384.0000000
PHOSPHA1	5	0.4400000	0.3361547	0	0.8000000
PHOSPHA2	0	.	.	.	.
PHOSPHA3	5	0.6000000	0.2645751	0.2000000	0.9000000
T_PHOS1	5	1.6400000	1.5059880	0.7000000	4.3000000
T_PHOS2	0	.	.	.	.
T_PHOS3	5	0.9800000	0.3633180	0.4000000	1.4000000
SILICA1	5	0.3200000	0.3962323	0	1.0000000
SILICA2	0	.	.	.	.
SILICA3	5	0.2600000	0.3130495	0	0.8000000
NO3NO2_1	5	12.2200000	14.4579390	0.5000000	36.6000000
NO3NO2_2	0	.	.	.	.
NO3NO2_3	5	10.5800000	16.3015950	0.6000000	39.4000000
TKN1	5	39.3800000	25.3960036	15.2000000	71.9000000
TKN2	0	.	.	.	.
TKN3	5	27.7600000	9.0908195	17.5000000	39.4000000

----- STATION=500 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	24	10.6680000	0	10.6680000	10.6680000
DEPTH1	25	0.3048000	0	0.3048000	0.3048000
DEPTH2	25	5.1816000	0	5.1816000	5.1816000
DEPTH3	25	10.6680000	0	10.6680000	10.6680000
SAL1	25	25.3880000	6.2548861	7.4000000	32.8000000
SAL2	24	27.6583333	4.8177134	12.2000000	33.5000000
SAL3	25	30.2520000	2.9576342	23.1000000	34.3000000
OXYGEN1	23	8.1608696	2.7986586	3.4000000	16.9000000
OXYGEN2	23	7.2391304	1.9336116	2.7000000	10.6000000
OXYGEN3	23	5.4608696	2.9024659	0	10.5000000
TURBID1	25	12.6000000	11.6261200	0	42.0000000
TURBID2	25	14.4400000	17.3687459	2.0000000	73.0000000
TURBID3	25	22.0800000	22.0093162	4.0000000	73.0000000
TDS1	25	27979.84	7055.65	7950.00	36518.00
TDS2	25	29626.08	5853.33	13654.00	37268.00
TDS3	25	33598.56	3334.56	25028.00	38490.00
SS1	25	43.0400000	25.0540749	0	102.0000000
SS2	25	51.0400000	37.6214478	2.0000000	186.0000000
SS3	25	53.8400000	32.5162523	4.0000000	156.0000000
TS1	25	28022.88	7059.84	7962.00	36546.00
TS2	25	29677.12	5868.63	13670.00	37288.00
TS3	25	33612.40	3393.17	25044.00	38550.00
CHLOR_A1	0	.	.	.	.
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	24	109.9583333	12.2526986	71.0000000	126.0000000
ALK2	24	114.3333333	7.6990494	95.0000000	126.0000000
ALK3	24	116.1666667	8.7310872	84.0000000	128.0000000
SULFATE1	25	1108.96	352.7930791	156.0000000	1585.00
SULFATE2	25	1196.92	284.2926778	356.0000000	1537.00
SULFATE3	25	1330.64	172.4001837	987.0000000	1610.00
AMMONIA1	25	2.9520000	2.5632206	0.1000000	10.8000000
AMMONIA2	24	3.3083333	3.1108389	0.2000000	14.2000000
AMMONIA3	25	6.6760000	6.9345920	1.6000000	29.8000000
CALCIUM1	25	302.5600000	69.4442702	116.0000000	400.0000000
CALCIUM2	25	327.8400000	54.3872534	168.0000000	448.0000000
CALCIUM3	25	356.9600000	62.3461306	268.0000000	600.0000000
PHOSPHA1	25	0.5280000	0.4532475	0	1.9000000
PHOSPHA2	25	0.6000000	0.4856267	0	2.1000000
PHOSPHA3	25	1.1760000	1.3693916	0.2000000	6.5000000
T_PHOS1	23	1.2913043	0.7942481	0.3000000	3.5000000
T_PHOS2	22	1.0363636	0.5778000	0.1000000	2.6000000
T_PHOS3	23	2.1260870	1.6793444	0.6000000	7.6000000
SILICA1	25	0.8080000	1.6948255	0	8.6000000
SILICA2	25	0.5440000	0.9354500	0	4.8000000
SILICA3	25	1.0480000	2.3306151	0	11.9000000
NO3NO2_1	25	7.1320000	10.3691337	0	33.0000000
NO3NO2_2	24	6.4500000	9.5585154	0	31.9000000
NO3NO2_3	25	5.7120000	7.8705315	0.2000000	29.3000000
TKN1	25	31.3000000	17.3139635	14.1000000	75.0000000
TKN2	24	26.7916667	13.2528231	11.5000000	64.2000000
TKN3	25	31.1840000	14.0112954	12.5000000	63.2000000

----- STATION=501 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	23	10.6680000	0	10.6680000	10.6680000
DEPTH1	24	0.3048000	0	0.3048000	0.3048000
DEPTH2	24	5.1816000	0	5.1816000	5.1816000
DEPTH3	24	10.6680000	0	10.6680000	10.6680000
SAL1	24	25.6666667	6.2012388	8.0000000	33.7000000
SAL2	23	27.4695652	5.1014646	11.8000000	34.3000000
SAL3	24	29.5125000	3.2121119	23.7000000	35.0000000
OXYGEN1	23	8.4521739	2.5471677	4.7000000	16.3000000
OXYGEN2	23	7.3130435	2.2037786	3.1000000	11.0000000
OXYGEN3	23	6.2130435	2.3537792	2.4000000	10.4000000
TURBID1	24	15.7916667	19.9018880	0	75.0000000
TURBID2	23	15.6521739	20.3996629	0	90.0000000
TURBID3	24	17.4583333	16.7305479	3.0000000	65.0000000
TDS1	24	28445.17	6930.59	9718.00	38218.00
TDS2	23	30462.09	5824.85	13578.00	38738.00
TDS3	24	32761.08	3537.46	27650.00	39356.00
SS1	24	46.4166667	28.6870925	0	114.0000000
SS2	23	51.4782609	29.0279952	12.0000000	134.0000000
SS3	24	57.7500000	22.6912165	18.0000000	94.0000000
TS1	24	28491.33	6933.02	9734.00	38234.00
TS2	23	30513.57	5824.95	13612.00	38758.00
TS3	24	32818.83	3544.41	27676.00	39386.00
CHLOR_A1	0	.	.	.	.
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	23	112.2608696	9.7989674	85.0000000	129.0000000
ALK2	22	113.5454545	7.5386450	96.0000000	124.0000000
ALK3	23	114.9565217	7.0031049	90.0000000	126.0000000
SULFATE1	24	1118.08	350.7239614	207.0000000	1579.00
SULFATE2	23	1200.43	303.3404667	360.0000000	1560.00
SULFATE3	24	1325.08	208.7017670	923.0000000	1700.00
AMMONIA1	24	2.3041667	1.5965940	0	7.1000000
AMMONIA2	23	2.6000000	1.9138253	0.1000000	6.7000000
AMMONIA3	24	3.9250000	3.7478400	0.1000000	18.3000000
CALCIUM1	24	305.8333333	66.6826792	120.0000000	400.0000000
CALCIUM2	23	323.1304348	51.9013963	168.0000000	408.0000000
CALCIUM3	24	345.8333333	54.5779591	272.0000000	552.0000000
PHOSPHA1	24	0.5083333	0.4241787	0	1.9000000
PHOSPHA2	23	0.4869565	0.4267257	0	1.8000000
PHOSPHA3	24	0.5750000	0.3151949	0.2000000	1.5000000
T_PHOS1	22	1.1772727	0.5822222	0.2000000	2.6000000
T_PHOS2	21	1.0380952	0.5536029	0	2.4000000
T_PHOS3	22	1.0818182	0.6005048	0	2.4000000
SILICA1	24	0.9458333	2.4685816	0	12.3000000
SILICA2	23	0.5391304	0.9875310	0	4.8000000
SILICA3	24	0.9000000	2.4528599	0	12.3000000
NO3NO2_1	24	7.0875000	10.5656257	0	34.3000000
NO3NO2_2	23	6.9347826	10.1839271	0	33.3000000
NO3NO2_3	24	5.4708333	8.2200433	0	32.4000000
TKN1	24	30.4375000	15.9404548	11.0000000	70.5000000
TKN2	23	26.6086957	13.2656053	11.3000000	65.4000000
TKN3	24	24.5750000	14.1701846	7.4000000	53.1000000

----- STATION=502 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	159	10.7224365	0.4883008	9.1440000	12.2300000
DEPTH1	163	0.4058540	0.3059420	0	2.2000000
DEPTH2	24	5.1816000	0	5.1816000	5.1816000
DEPTH3	163	10.7267288	0.4762746	9.1440000	12.2300000
SAL1	159	25.9588050	5.6703499	8.2000000	34.6000000
SAL2	23	27.6043478	4.8683092	12.2000000	34.3000000
SAL3	159	31.5809434	2.8934515	18.7000000	38.4000000
OXYGEN1	159	8.4106918	2.3327224	2.9000000	17.9000000
OXYGEN2	23	7.6391304	1.8247638	4.7000000	10.8000000
OXYGEN3	159	4.7713836	2.7807001	0	11.7000000
TURBID1	154	4.9931818	9.1899020	0	75.0000000
TURBID2	24	17.0000000	21.1660105	2.0000000	88.0000000
TURBID3	154	11.0941558	12.6547479	0	81.0000000
TDS1	162	29606.87	7724.40	10228.00	64598.00
TDS2	24	30428.42	5305.40	14164.00	37798.00
TDS3	163	35752.31	5114.50	14021.00	59820.00
SS1	162	20.3888889	21.3370613	0	104.0000000
SS2	24	50.2500000	36.0208273	2.0000000	178.0000000
SS3	163	38.3496933	34.8696928	0	163.0000000
TS1	162	29632.88	7730.75	10244.00	64658.00
TS2	24	30478.67	5318.27	14180.00	37800.00
TS3	163	35790.67	5114.00	14030.00	59822.00
CHLOR_A1	138	6.1991304	7.1502034	0.0300000	35.8500000
CHLOR_A2	0	.	.	.	.
CHLOR_A3	137	3.8015328	4.7667630	0	27.7000000
ALK1	161	112.6335404	11.2775715	58.0000000	132.0000000
ALK2	23	112.9130435	10.9000127	72.0000000	126.0000000
ALK3	162	117.4320988	8.1415097	64.0000000	132.0000000
SULFATE1	159	1816.75	694.4419941	236.0000000	4536.00
SULFATE2	24	1213.58	280.2185353	382.0000000	1566.00
SULFATE3	161	2218.33	595.3121742	821.0000000	3874.00
AMMONIA1	162	1.6469753	1.8821997	0	13.1900000
AMMONIA2	24	2.3833333	1.4412153	0	5.5000000
AMMONIA3	161	4.8886957	6.2772051	0	35.5599999
CALCIUM1	163	308.0245399	60.5762402	120.0000000	444.0000000
CALCIUM2	24	321.0000000	59.7531153	176.0000000	488.0000000
CALCIUM3	163	359.3865031	39.6119020	228.0000000	576.0000000
PHOSPHA1	160	0.5138750	0.8877213	0	10.2000000
PHOSPHA2	24	0.4041667	0.3593220	0	1.5000000
PHOSPHA3	160	1.2342500	1.6055680	0	12.7000000
T_PHOS1	158	3.0533544	3.1547763	0	21.0000000
T_PHOS2	22	0.9636364	0.5178209	0	1.9000000
T_PHOS3	158	4.5326582	5.2134423	0	34.2000000
SILICA1	161	0.4523602	0.6046502	0	5.1000000
SILICA2	24	0.6916667	1.7153822	0	8.6000000
SILICA3	160	0.6358750	0.9980909	0	11.4000000
NO3NO2_1	161	8.3846584	12.7698804	0	83.3000000
NO3NO2_2	24	6.1875000	9.4848764	0	32.0000000
NO3NO2_3	159	7.1907547	8.7307456	0	56.7500000
TKN1	156	50.5335897	40.8901356	1.4000000	198.9500000
TKN2	24	25.3500000	14.7602875	9.0000000	66.7000000
TKN3	156	48.9432692	40.3841288	0	184.4000000

----- STATION=505 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	23	10.6680000	0	10.6680000	10.6680000
DEPTH1	24	0.3048000	0	0.3048000	0.3048000
DEPTH2	24	5.1816000	0	5.1816000	5.1816000
DEPTH3	24	10.6680000	0	10.6680000	10.6680000
SAL1	24	25.9625000	6.3909455	8.6000000	34.3000000
SAL2	22	27.9727273	4.8877088	13.4000000	34.7000000
SAL3	22	30.9636364	2.8372598	25.4000000	35.2000000
OXYGEN1	23	8.6913043	2.6751233	4.4000000	16.8000000
OXYGEN2	23	7.8260870	1.7410074	4.0000000	10.8000000
OXYGEN3	22	5.9363636	2.8189065	0	10.3000000
TURBID1	24	13.3333333	17.0310884	0	71.0000000
TURBID2	24	12.7916667	15.7975759	0	68.0000000
TURBID3	24	14.9166667	15.2427222	0	56.0000000
TDS1	24	28553.29	7103.68	10096.00	38274.00
TDS2	24	30496.75	5273.29	15504.00	38328.00
TDS3	24	34018.50	3147.64	27070.00	38402.00
SS1	24	58.8333333	39.9343664	20.0000000	180.0000000
SS2	24	54.7500000	30.2615411	20.0000000	128.0000000
SS3	24	62.3333333	25.4672282	24.0000000	126.0000000
TS1	24	28612.13	7121.11	10122.00	38398.00
TS2	24	30551.50	5287.78	15528.00	38456.00
TS3	24	34080.83	3161.71	27110.00	38448.00
CHLOR_A1	0	.	.	.	.
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	23	113.2173913	9.7605725	86.0000000	126.0000000
ALK2	23	114.3913043	7.1778645	94.0000000	126.0000000
ALK3	23	116.0434783	10.0565594	74.0000000	126.0000000
SULFATE1	24	1142.67	351.8473813	255.0000000	1591.00
SULFATE2	24	1224.42	297.0635881	436.0000000	1604.00
SULFATE3	24	1389.38	173.4370735	1022.00	1738.00
AMMONIA1	24	2.3416667	1.7196857	0	6.8000000
AMMONIA2	24	2.5416667	2.4705072	0	12.8000000
AMMONIA3	24	4.3875000	4.4980491	0.7000000	19.6000000
CALCIUM1	24	305.3333333	64.1266862	128.0000000	384.0000000
CALCIUM2	24	322.8333333	48.2958875	192.0000000	432.0000000
CALCIUM3	24	358.6666667	84.4885722	272.0000000	720.0000000
PHOSPHA1	24	0.3708333	0.3906284	0	1.7000000
PHOSPHA2	24	0.4000000	0.3599517	0	1.5000000
PHOSPHA3	24	0.7500000	1.0065006	0.1000000	4.6000000
T_PHOS1	22	1.0272727	0.4452734	0.4000000	2.0000000
T_PHOS2	22	0.9636364	0.4541297	0.3000000	2.1000000
T_PHOS3	22	1.3727273	1.2762228	0.2000000	6.2000000
SILICA1	24	0.7500000	1.7095639	0	8.4000000
SILICA2	24	0.5541667	1.0713580	0	5.3000000
SILICA3	24	0.7333333	1.4138036	0	7.0000000
NO3NO2_1	24	7.2375000	11.2983574	0	34.9000000
NO3NO2_2	24	6.7416667	10.0826979	0	32.9000000
NO3NO2_3	24	6.8208333	9.2366933	0.1000000	29.6000000
TKN1	24	26.5833333	16.8573727	10.3000000	73.0000000
TKN2	24	24.3333333	14.8678429	6.3000000	65.4000000
TKN3	23	24.3913043	14.8097607	3.6000000	66.2000000

----- STATION=506 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	23	10.6680000	0	10.6680000	10.6680000
DEPTH1	25	0.3048000	0	0.3048000	0.3048000
DEPTH2	25	5.1816000	0	5.1816000	5.1816000
DEPTH3	25	10.6680000	0	10.6680000	10.6680000
SAL1	25	25.6400000	6.2972878	8.6000000	34.5000000
SAL2	25	28.1480000	4.1459941	16.3000000	34.7000000
SAL3	24	30.5958333	3.1208247	24.5000000	35.5000000
OXYGEN1	21	8.4476190	3.3283057	2.3000000	17.7000000
OXYGEN2	22	7.1045455	2.5650540	1.2000000	11.4000000
OXYGEN3	22	6.0000000	2.6304083	0.3000000	10.4000000
TURBID1	25	13.2400000	12.4407931	2.0000000	51.0000000
TURBID2	25	11.7200000	14.3309688	0	61.0000000
TURBID3	25	14.8000000	15.9765453	2.0000000	68.0000000
TDS1	25	28541.96	6714.14	10292.00	36964.00
TDS2	25	31185.80	4552.74	18062.00	37850.00
TDS3	25	33157.36	3620.45	25920.00	39356.00
SS1	25	53.1200000	26.9572501	14.0000000	126.0000000
SS2	25	53.9200000	29.6731079	18.0000000	138.0000000
SS3	25	61.6800000	29.7079114	26.0000000	136.0000000
TS1	25	28595.08	6727.75	10312.00	37090.00
TS2	25	31238.44	4566.12	18082.00	37988.00
TS3	25	33219.04	3634.22	25946.00	39422.00
CHLOR_A1	0	.	.	.	.
CHLOR_A2	0	.	.	.	.
CHLOR_A3	0	.	.	.	.
ALK1	24	111.8750000	13.5976740	59.0000000	126.0000000
ALK2	24	114.0833333	10.0689651	76.0000000	126.0000000
ALK3	24	113.9583333	10.3229553	73.0000000	126.0000000
SULFATE1	25	1152.36	342.3999708	267.0000000	1614.00
SULFATE2	25	1262.52	259.4035016	563.0000000	1610.00
SULFATE3	25	1375.12	194.3590578	1019.00	1677.00
AMMONIA1	25	2.2520000	1.5785331	0	6.3000000
AMMONIA2	25	2.5960000	1.7098928	0	7.2000000
AMMONIA3	25	4.2600000	3.3260337	0.1000000	14.6000000
CALCIUM1	25	303.6800000	68.2829408	136.0000000	396.0000000
CALCIUM2	25	324.4800000	50.6006588	200.0000000	456.0000000
CALCIUM3	25	349.6000000	70.1332066	252.0000000	640.0000000
PHOSPHA1	25	0.4080000	0.3796051	0	1.6000000
PHOSPHA2	25	0.3880000	0.3467948	0	1.5000000
PHOSPHA3	25	0.7920000	0.9322553	0.1000000	4.3000000
T_PHOS1	23	1.1608696	0.4098105	0.5000000	2.2000000
T_PHOS2	22	1.0409091	0.3874939	0.1000000	1.5000000
T_PHOS3	23	1.3652174	0.8865709	0.1000000	4.3000000
SILICA1	25	0.7000000	1.1818065	0	5.8000000
SILICA2	25	0.5840000	1.2528900	0	6.4000000
SILICA3	25	0.9040000	2.2434126	0	11.5000000
NO3NO2_1	25	7.1560000	10.8855822	0	34.0000000
NO3NO2_2	25	6.9680000	10.2268731	0.2000000	33.2000000
NO3NO2_3	25	5.7840000	8.8879919	0.3000000	30.3000000
TKN1	25	29.0800000	20.2619306	6.3000000	83.7000000
TKN2	25	24.1240000	14.8910846	8.1000000	61.7000000
TKN3	25	23.9440000	15.4174976	6.6000000	52.3000000

----- STATION=507 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	52	10.6680000	0	10.6680000	10.6680000
DEPTH1	54	0.3048000	0	0.3048000	0.3048000
DEPTH2	25	5.1816000	0	5.1816000	5.1816000
DEPTH3	55	10.6680000	0	10.6680000	10.6680000
SAL1	53	26.1094340	5.9287845	8.8000000	34.3000000
SAL2	24	27.6791667	4.9356713	15.4000000	34.7000000
SAL3	53	31.3735849	3.2282498	19.8000000	35.3000000
OXYGEN1	51	8.9352941	2.8591484	3.9000000	18.6000000
OXYGEN2	22	7.8227273	2.0676492	3.4000000	11.2000000
OXYGEN3	52	5.2269231	2.6662830	0.1000000	11.2000000
TURBID1	54	7.2222222	10.8674113	0	56.0000000
TURBID2	25	11.1600000	11.7142364	0	49.0000000
TURBID3	55	8.8727273	10.6093155	0	62.0000000
TDS1	54	29558.63	8317.30	10570.00	58650.00
TDS2	25	30139.68	5340.25	17420.00	38120.00
TDS3	54	36055.35	6950.21	21178.00	63376.00
SS1	54	33.9629630	31.1090371	0	128.0000000
SS2	25	55.7600000	28.2035459	6.0000000	136.0000000
SS3	54	48.2777778	47.7716331	0	292.0000000
TS1	54	29592.59	8322.70	10590.00	58712.00
TS2	25	30195.44	5352.58	17450.00	38256.00
TS3	55	36588.87	7768.75	21218.00	63452.00
CHLOR_A1	30	6.5900000	7.5449161	0	26.6000000
CHLOR_A2	0	*	*	*	*
CHLOR_A3	30	3.3766667	4.1614556	0	19.2000000
ALK1	53	114.3962264	10.9708348	54.0000000	129.0000000
ALK2	24	113.0416667	12.4393456	61.0000000	126.0000000
ALK3	54	118.2222222	5.4032369	100.0000000	130.0000000
SULFATE1	54	1378.33	510.4563996	271.0000000	2518.00
SULFATE2	25	1232.36	278.2480728	528.0000000	1601.00
SULFATE3	55	1711.02	498.6357867	859.0000000	2912.00
AMMONIA1	54	1.8351852	1.7796711	0	9.3000000
AMMONIA2	25	2.3000000	1.8768324	0	9.3000000
AMMONIA3	54	4.5907407	6.1141429	0	30.3000000
CALCIUM1	54	296.5185185	62.5353457	128.0000000	384.0000000
CALCIUM2	25	318.2400000	56.3687857	184.0000000	440.0000000
CALCIUM3	55	354.9818182	52.2343334	232.0000000	640.0000000
PHOSPHA1	53	0.3943396	0.3845152	0	1.6000000
PHOSPHA2	25	0.4120000	0.3711693	0	1.5000000
PHOSPHA3	54	1.0037037	1.4500440	0	7.7000000
T_PHOS1	52	1.1173077	0.5989275	0	3.2000000
T_PHOS2	23	0.9130435	0.4235181	0	1.6000000
T_PHOS3	51	1.7784314	1.7057917	0.1000000	7.4000000
SILICA1	53	0.3773585	0.4487768	0	2.0000000
SILICA2	25	0.6600000	1.3656500	0	6.9000000
SILICA3	54	0.6740741	1.2463055	0	8.9000000
NO3NO2_1	54	7.2037037	10.0938046	0	45.9000000
NO3NO2_2	25	7.3000000	10.6287346	0	32.6000000
NO3NO2_3	53	6.3188679	8.0378206	0.1000000	32.9000000
TKN1	54	34.3518519	23.4791496	8.8000000	133.0000000
TKN2	25	24.2640000	13.9104541	8.6000000	61.7000000
TKN3	53	32.0924528	22.6187367	5.2000000	111.9000000

----- STATION=535 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	127	11.0207732	8.6236430	2.2000000	106.6800000
DEPTH1	132	0.4112076	0.3190704	0.1000000	2.2800000
DEPTH2	19	5.1495158	0.1398518	4.5720000	5.1816000
DEPTH3	131	10.3606962	0.6346902	7.9248000	12.0000000
SAL1	129	25.2782946	5.6776969	7.7000000	33.7800000
SAL2	18	27.2722222	5.4140129	11.5000000	33.9000000
SAL3	127	30.9585039	3.4570253	17.9000000	38.6600000
OXYGEN1	126	8.2738095	2.0423194	2.9000000	14.8000000
OXYGEN2	17	7.0941176	2.2526292	3.6000000	10.8000000
OXYGEN3	125	4.4864000	2.7344677	0	10.4000000
TURBID1	129	4.2929225	6.2671602	0	47.0000000
TURBID2	19	11.4736842	11.4327426	3.0000000	42.0000000
TURBID3	128	10.4429687	12.3004685	0	80.0000000
TDS1	131	28442.99	7719.67	4315.00	61608.00
TDS2	19	29769.53	5606.49	13620.00	35706.00
TDS3	130	35195.72	7224.63	4417.00	68118.00
SS1	131	21.4961832	20.7580843	0	104.0000000
SS2	19	46.6842105	21.3230513	14.0000000	92.0000000
SS3	130	34.0307692	31.3761719	0	165.0000000
TS1	131	28464.47	7722.26	4330.00	61674.00
TS2	19	29816.21	5614.18	13634.00	35770.00
TS3	130	35008.74	7749.18	3200.00	68210.00
CHLOR_A1	110	7.6368182	8.6945710	0.2000000	47.2000000
CHLOR_A2	1	3.6000000	*	3.6000000	3.6000000
CHLOR_A3	109	4.2180734	5.3049775	0	25.7000000
ALK1	132	115.1060606	8.2455240	88.0000000	136.0000000
ALK2	19	114.4736842	5.9101459	102.0000000	122.0000000
ALK3	131	118.4732824	5.7208502	100.0000000	130.0000000
SULFATE1	130	1760.03	650.9818576	239.0000000	3598.00
SULFATE2	19	1259.74	408.5293192	398.0000000	2274.00
SULFATE3	129	2149.62	583.1156242	678.0000000	3728.00
AMMONIA1	132	1.5346212	1.7310979	0	13.2000000
AMMONIA2	19	2.1315789	1.4503075	0	5.4000000
AMMONIA3	130	6.4655385	9.4252489	0	69.1000000
CALCIUM1	132	296.1212121	60.3763047	96.0000000	428.0000000
CALCIUM2	19	326.1052632	66.9111307	168.0000000	472.0000000
CALCIUM3	131	353.3129771	42.1614268	224.0000000	536.0000000
PHOSPHA1	131	0.5028244	0.8212741	0	8.1600000
PHOSPHA2	19	0.3947368	0.3851027	0	1.6000000
PHOSPHA3	130	1.4484615	2.0508892	0.0200000	11.3400000
T_PHOS1	129	3.2111628	3.0019415	0	19.7000000
T_PHOS2	17	1.3647059	2.3173102	0.1000000	10.2000000
T_PHOS3	127	5.0286929	5.7651259	0	34.4000000
SILICA1	128	0.5202344	0.8819917	0	8.5000000
SILICA2	19	0.6263158	1.5014223	0	6.7000000
SILICA3	126	0.6607619	0.6153658	0	3.2400000
NO3NO2_1	128	9.5515625	13.3486513	0	61.0000000
NO3NO2_2	19	8.2947368	11.6029438	0.1000000	34.3000000
NO3NO2_3	126	7.4338889	9.3214596	0	54.6900000
TKN1	124	57.9490323	39.2136765	4.5000000	208.9900000
TKN2	19	28.0631579	16.3431675	10.3000000	80.6000000
TKN3	121	61.0467769	44.8197550	0.6000000	204.3400000

----- STATION=704 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	123	19.5457154	1.7064284	8.8970000	23.2100000
DEPTH1	127	0.4532866	0.3851893	0.1000000	2.6900000
DEPTH2	127	9.7919071	0.6945621	6.7700000	11.6000000
DEPTH3	127	19.7377921	1.2099779	12.4500000	24.6888000
SAL1	124	26.4058064	5.4193976	12.5000000	34.9000000
SAL2	124	31.9015323	2.7231492	22.7000000	36.8000000
SAL3	123	34.6916260	1.5716981	29.2700000	39.3800000
OXYGEN1	121	8.2528926	1.9041216	3.3000000	15.8000000
OXYGEN2	122	6.3151639	1.7902270	0.2000000	10.4000000
OXYGEN3	121	4.0016529	2.2699939	0	8.5000000
TURBID1	118	1.9386441	1.9644276	0	18.0000000
TURBID2	118	1.5527966	3.0196340	0	32.0000000
TURBID3	118	7.4855932	9.9369231	0	80.0000000
TDS1	127	29703.10	8228.37	10298.00	75516.00
TDS2	127	36347.44	5138.58	10515.00	61868.00
TDS3	127	39604.09	6072.91	10612.00	66198.00
SS1	127	16.1417323	20.4806236	0	138.0000000
SS2	127	18.4960630	22.4541416	0	94.0000000
SS3	127	29.7795276	33.5821460	0	258.0000000
TS1	127	29719.13	8230.55	10300.00	75528.00
TS2	127	36366.02	5141.09	10520.00	61880.00
TS3	127	39633.87	6075.57	10620.00	66206.00
CHLOR_A1	122	5.2170492	7.0325828	0	51.2000000
CHLOR_A2	122	1.9154098	2.5296477	0	19.2800000
CHLOR_A3	123	1.5789431	2.7431778	0.0500000	25.0000000
ALK1	125	113.9920000	10.7053619	35.0000000	132.0000000
ALK2	127	117.4330709	7.4924200	64.0000000	134.0000000
ALK3	127	119.9842520	5.3392590	86.0000000	132.0000000
SULFATE1	125	1953.38	637.3519409	532.0000000	3685.00
SULFATE2	125	2376.19	504.7993964	1073.00	3800.00
SULFATE3	125	2567.80	475.3376219	1544.00	4039.00
AMMONIA1	125	1.4721600	2.5663378	0	24.1000000
AMMONIA2	124	1.1841935	1.3233575	0	10.5000000
AMMONIA3	125	2.1250400	3.3516553	0	20.4200000
CALCIUM1	127	304.5669291	56.6083160	152.0000000	400.0000000
CALCIUM2	127	361.9527559	35.7019981	180.0000000	420.0000000
CALCIUM3	127	390.5511811	29.9911915	248.0000000	452.0000000
PHOSPHA1	124	0.3603226	0.3458228	0	2.3000000
PHOSPHA2	123	0.3615447	0.3997192	0	3.4000000
PHOSPHA3	124	0.9757258	0.9632737	0	5.4000000
T_PHOS1	124	3.2639516	3.1656497	0.2000000	18.1000000
T_PHOS2	125	3.0543200	3.5752630	0	26.2000000
T_PHOS3	124	4.7933065	5.2142662	0	29.8000000
SILICA1	123	0.3758537	0.5001228	0	2.4800000
SILICA2	123	0.2317073	0.3214101	0	1.9900000
SILICA3	123	0.5070732	0.4571952	0	1.9600000
NO3NO2_1	121	9.5404959	15.5147406	0	96.8000000
NO3NO2_2	123	5.2740650	6.5111394	0	36.6100000
NO3NO2_3	122	7.6831148	6.8130150	0	44.0200000
TKN1	118	51.0539831	39.8549473	0	190.5400000
TKN2	119	42.8941176	37.3696107	0	168.4100000
TKN3	118	45.0673729	37.3390278	0	136.2300000

----- STATION=706 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	131	26.0641756	0.7649117	21.3200000	27.5000000
DEPTH1	137	0.4547401	0.4077234	0.1000000	2.5000000
DEPTH2	133	13.1094677	0.7946632	10.4200000	17.1000000
DEPTH3	136	25.9824265	1.0811069	17.0688000	27.5000000
SAL1	137	26.7307263	5.3980220	13.4000000	36.4000000
SAL2	130	33.4491723	2.1276349	26.7000000	37.5000000
SAL3	135	35.1907600	1.6375926	27.5000000	37.7500000
OXYGEN1	136	7.9511029	2.0293172	2.3000000	14.5000000
OXYGEN2	130	6.0530769	1.7296968	1.0000000	11.2000000
OXYGEN3	133	4.1729323	2.0657058	0.2000000	8.3000000
TURBID1	131	1.9306107	2.1849829	0	20.0000000
TURBID2	124	1.1097581	1.1630815	0	10.0000000
TURBID3	128	8.3889844	16.6270700	0.8300000	154.0000000
TDS1	139	30207.93	7239.87	11878.00	65818.00
TDS2	132	38501.21	5530.03	28611.00	64720.00
TDS3	137	39949.11	4607.18	28444.00	63106.00
SS1	139	16.1151079	20.0449058	0	109.0000000
SS2	132	16.0454545	20.2250180	0	82.0000000
SS3	137	29.0437956	38.2812480	0	262.0000000
TS1	139	30224.26	7241.58	11884.00	65842.00
TS2	132	38517.26	5532.43	28640.00	64728.00
TS3	137	39978.15	4611.24	28450.00	63154.00
CHLOR_A1	136	4.4998382	5.7020965	0	27.5600000
CHLOR_A2	128	1.2915594	1.8459548	0	14.8000000
CHLOR_A3	133	1.0006015	1.5740345	0	14.6000000
ALK1	139	114.4244604	8.1382782	92.0000000	142.0000000
ALK2	132	118.3333333	5.4837256	82.0000000	128.0000000
ALK3	137	121.0364964	4.1593424	106.0000000	131.0000000
SULFATE1	138	2006.32	653.8591221	480.0000000	3695.00
SULFATE2	131	2510.02	479.7547846	1432.00	3794.00
SULFATE3	135	2624.48	471.3254865	1547.00	4116.00
AMMONIA1	139	1.1322302	1.5729899	0	10.6600000
AMMONIA2	132	1.1931061	1.4700019	0	10.6800000
AMMONIA3	136	1.4037500	2.3791396	0	22.0000000
CALCIUM1	140	311.0428571	53.9141165	164.0000000	404.0000000
CALCIUM2	132	376.5454545	34.7159386	192.0000000	472.0000000
CALCIUM3	137	394.1313869	34.6751347	152.0000000	460.0000000
PHOSPHA1	137	0.3263504	0.3006216	0	1.6000000
PHOSPHA2	129	0.3186047	0.3093308	0	1.8800000
PHOSPHA3	134	0.8193284	0.7305598	0	4.7000000
T_PHOS1	137	3.0618248	3.1025135	0	19.4000000
T_PHOS2	129	2.9433566	3.2358905	0	18.8000000
T_PHOS3	134	4.1743284	4.0987633	0	26.9000000
SILICA1	136	0.3318382	0.4307344	0	2.4200000
SILICA2	129	0.2018605	0.2842060	0	2.1300000
SILICA3	134	0.4349254	0.3931725	0	2.3000000
NO3NO2_1	135	8.9964444	13.5601026	0	80.0900000
NO3NO2_2	129	4.2007752	4.9248319	0	35.4300000
NO3NO2_3	134	7.3295522	5.6184153	0	31.8100000
TKN1	131	50.0051145	49.3689593	0	420.1300000
TKN2	124	41.0166935	36.4810100	0	152.0000000
TKN3	129	40.1768992	34.5944649	0	132.1600000

----- STATION=708 -----

Variable	N	Mean	Std Dev	Minimum	Maximum
SDEPTH	132	32.3306773	1.1432113	27.6300000	33.3500000
DEPTH1	136	0.4886794	0.4111594	0.1000000	2.8400000
DEPTH2	132	16.1488909	0.8889806	12.1920000	17.0688000
DEPTH3	136	32.3120823	1.2190776	27.1272000	33.3500000
SAL1	133	27.3151128	5.6129722	13.4000000	38.4000000
SAL2	131	34.1782443	1.9600025	29.3000000	37.8000000
SAL3	133	35.6144361	1.7847466	20.4000000	38.3800000
OXYGEN1	133	7.8774436	1.8331384	3.5000000	12.8000000
OXYGEN2	130	6.0715385	1.4386813	2.2000000	9.1000000
OXYGEN3	131	4.4935115	1.8990017	0.5000000	13.0000000
TURBID1	126	1.9312698	2.1059732	0	15.0000000
TURBID2	124	1.0617742	1.0751578	0	6.0000000
TURBID3	125	7.6820000	10.4029284	0	92.0000000
TDS1	135	30553.97	6657.45	15115.00	51734.00
TDS2	132	39058.93	4857.58	30338.00	68386.00
TDS3	135	40882.36	5539.99	22541.00	70648.00
SS1	135	17.9407407	20.8365218	0	93.0000000
SS2	132	16.5681818	21.3545830	0	124.0000000
SS3	135	30.8740741	29.9978680	0	159.0000000
TS1	135	30571.91	6662.27	15150.00	51754.00
TS2	132	41430.41	27069.67	30340.00	345102.00
TS3	135	40913.23	5541.97	22550.00	70710.00
CHLOR_A1	133	3.8736842	4.8801212	0.0500000	24.3500000
CHLOR_A2	129	1.0615504	2.0472247	0	20.5000000
CHLOR_A3	131	1.1729771	2.7575035	0	22.4000000
ALK1	135	114.8962963	7.8695275	87.0000000	128.0000000
ALK2	132	119.6742424	5.4625669	82.0000000	130.0000000
ALK3	134	120.8582090	5.2675100	93.0000000	130.0000000
SULFATE1	133	2021.31	639.5451056	595.0000000	3807.00
SULFATE2	130	2548.79	507.7064051	1419.00	4103.00
SULFATE3	133	2645.34	507.9787321	249.0000000	4247.00
AMMONIA1	133	1.0847368	1.2978920	0	9.5800000
AMMONIA2	131	1.2023664	2.4377312	0	23.5000000
AMMONIA3	133	1.1957143	2.0707374	0	17.1000000
CALCIUM1	135	314.9555556	57.2826022	160.0000000	428.0000000
CALCIUM2	132	384.3181818	33.8914563	172.0000000	512.0000000
CALCIUM3	135	397.6888889	37.2469505	104.0000000	472.0000000
PHOSPHA1	132	0.3859848	0.7517845	0	8.1000000
PHOSPHA2	127	0.2704724	0.2491027	0	2.0000000
PHOSPHA3	132	0.6103030	0.4149937	0	2.1000000
T_PHOS1	131	2.9462595	2.7984329	0	16.3000000
T_PHOS2	129	2.6136434	2.7255759	0	16.5000000
T_PHOS3	132	3.6433333	3.4719660	0	27.4000000
SILICA1	132	0.3365152	0.4336442	0	2.6200000
SILICA2	130	0.1706154	0.2611743	0	2.3100000
SILICA3	132	0.3620455	0.3437217	0	2.4200000
NO3NO2_1	130	9.0078462	13.4027440	0	65.9100000
NO3NO2_2	130	3.6447692	4.1476552	0	26.7000000
NO3NO2_3	131	6.7260305	6.0286462	0	34.1500000
TKN1	126	47.6688095	39.2492824	0	172.2300000
TKN2	125	37.9778400	33.3890642	0	138.4600000
TKN3	127	42.4131496	44.5573576	0	292.6500000

Appendix D. Time series plots from selected LDWF LOOP water chemistry stations.

LDWF, LOOP Water Chemistry Data: Alkalinity

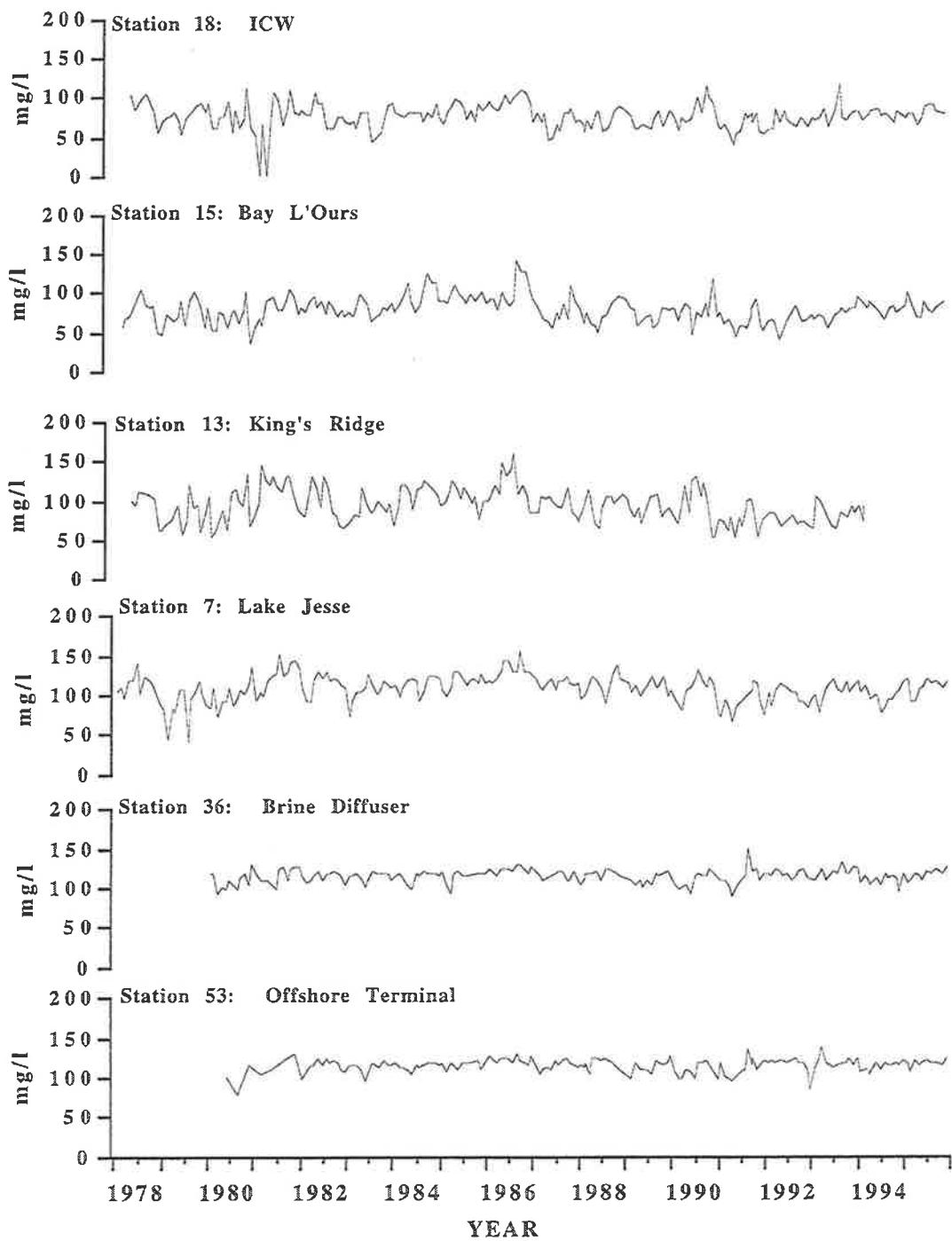


Figure D-1. Time series plots of monthly surface Alkalinity for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemisrty Data: Ammonia

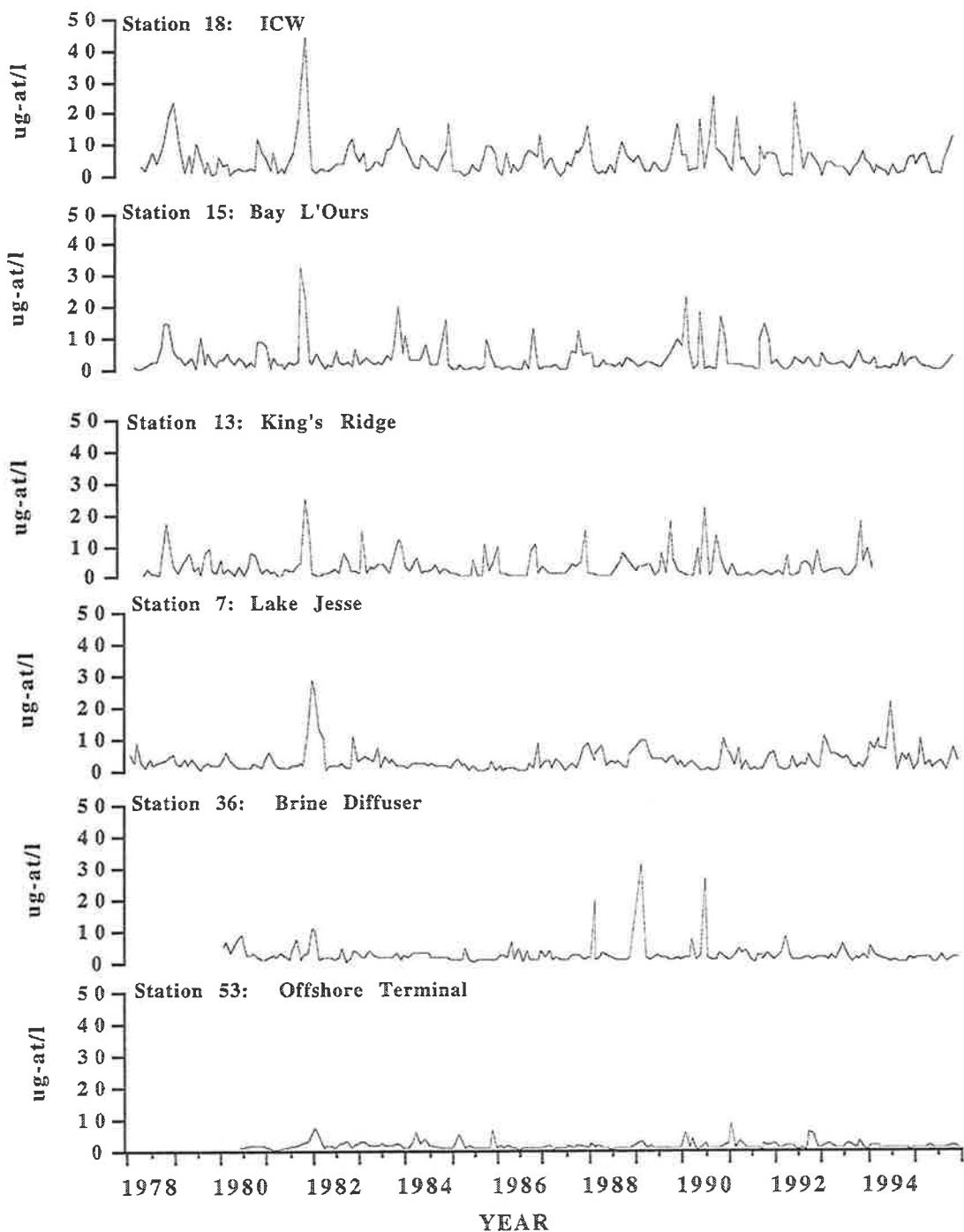


Figure D-2. Time series plots of monthly surface Ammonia for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Calcium

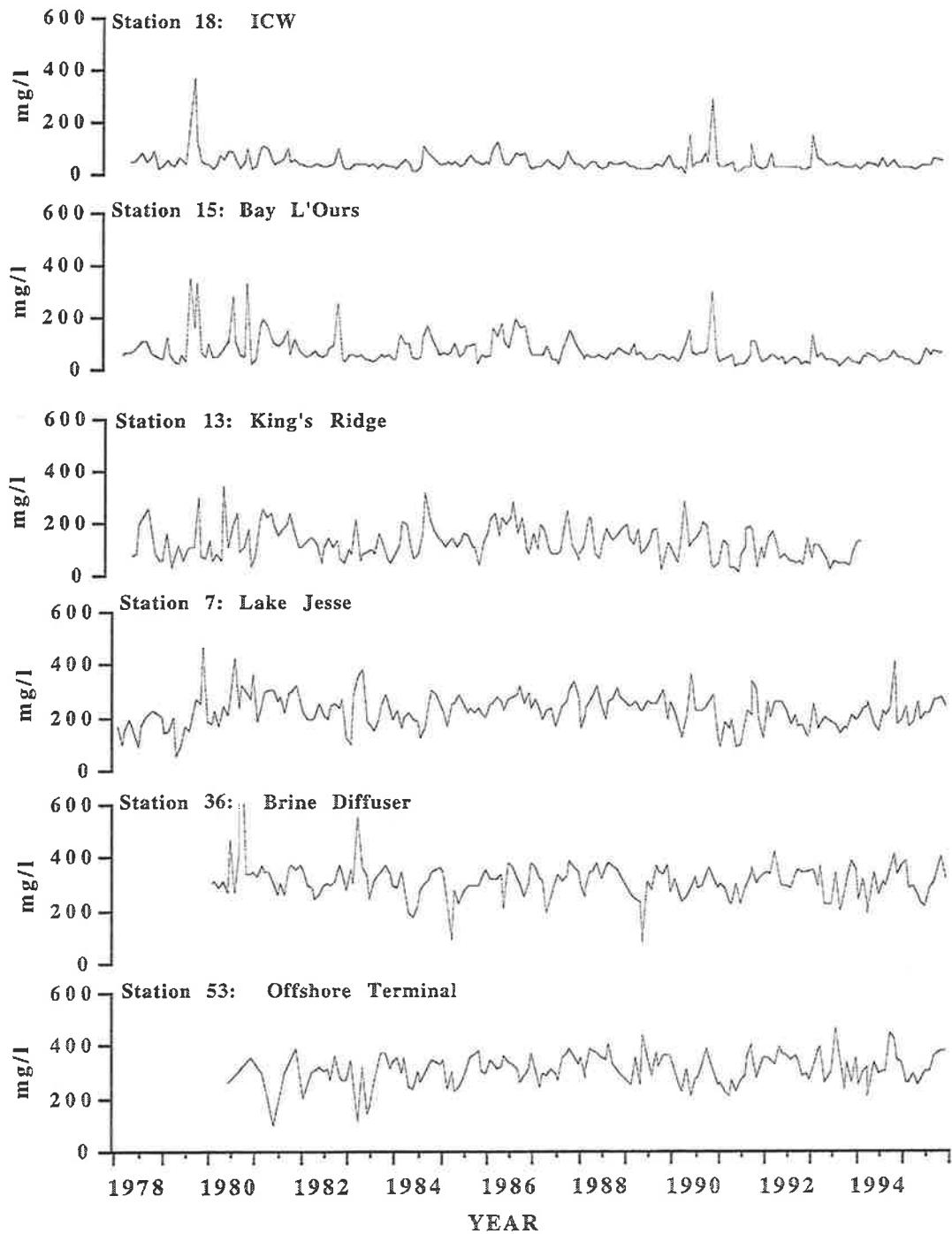


Figure D-3. Time series plots of monthly surface Calcium, for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Chlorophyll-a

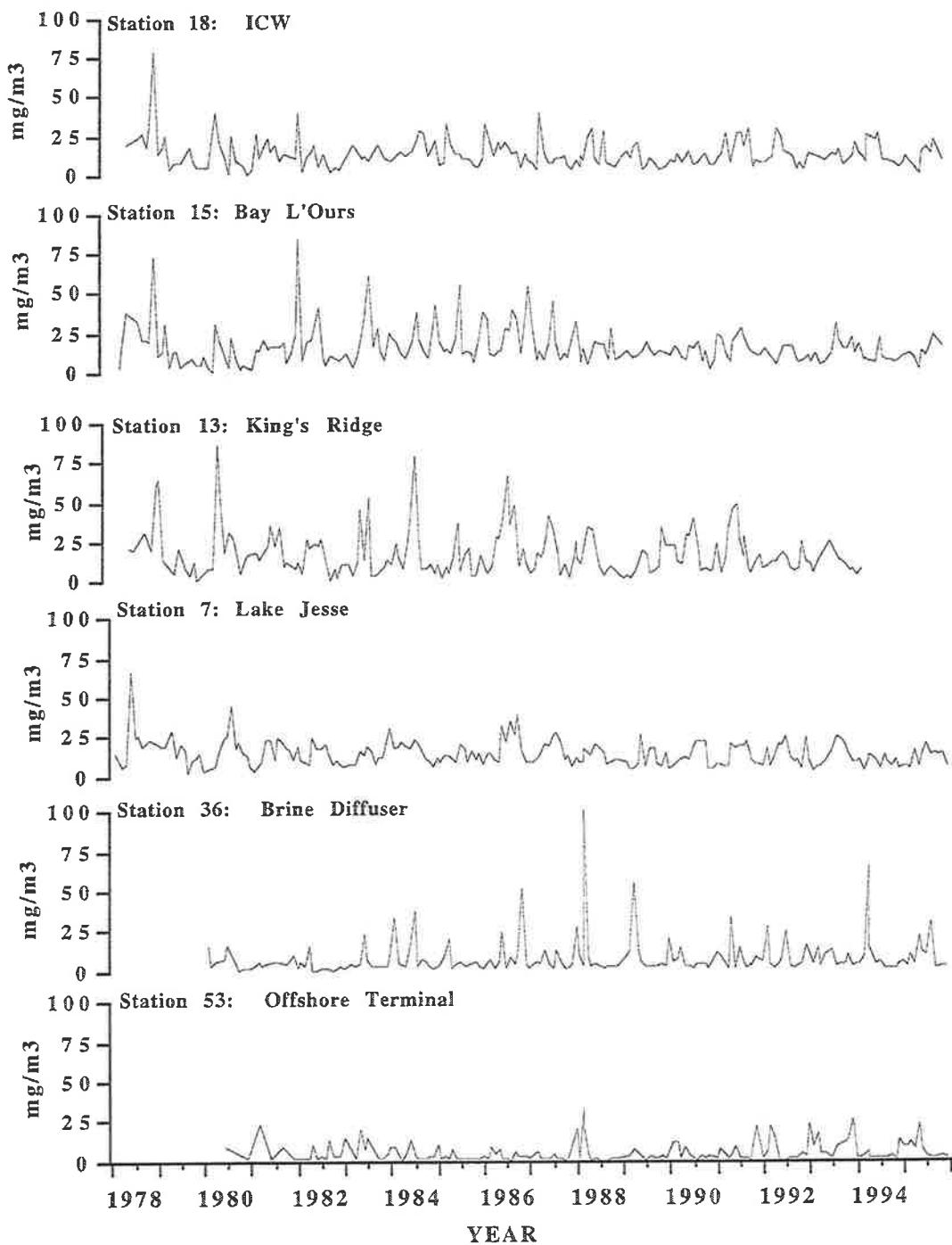


Figure D-4. Time series plots of monthly surface Chlorophyll-a for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Nitrate-Nitrite

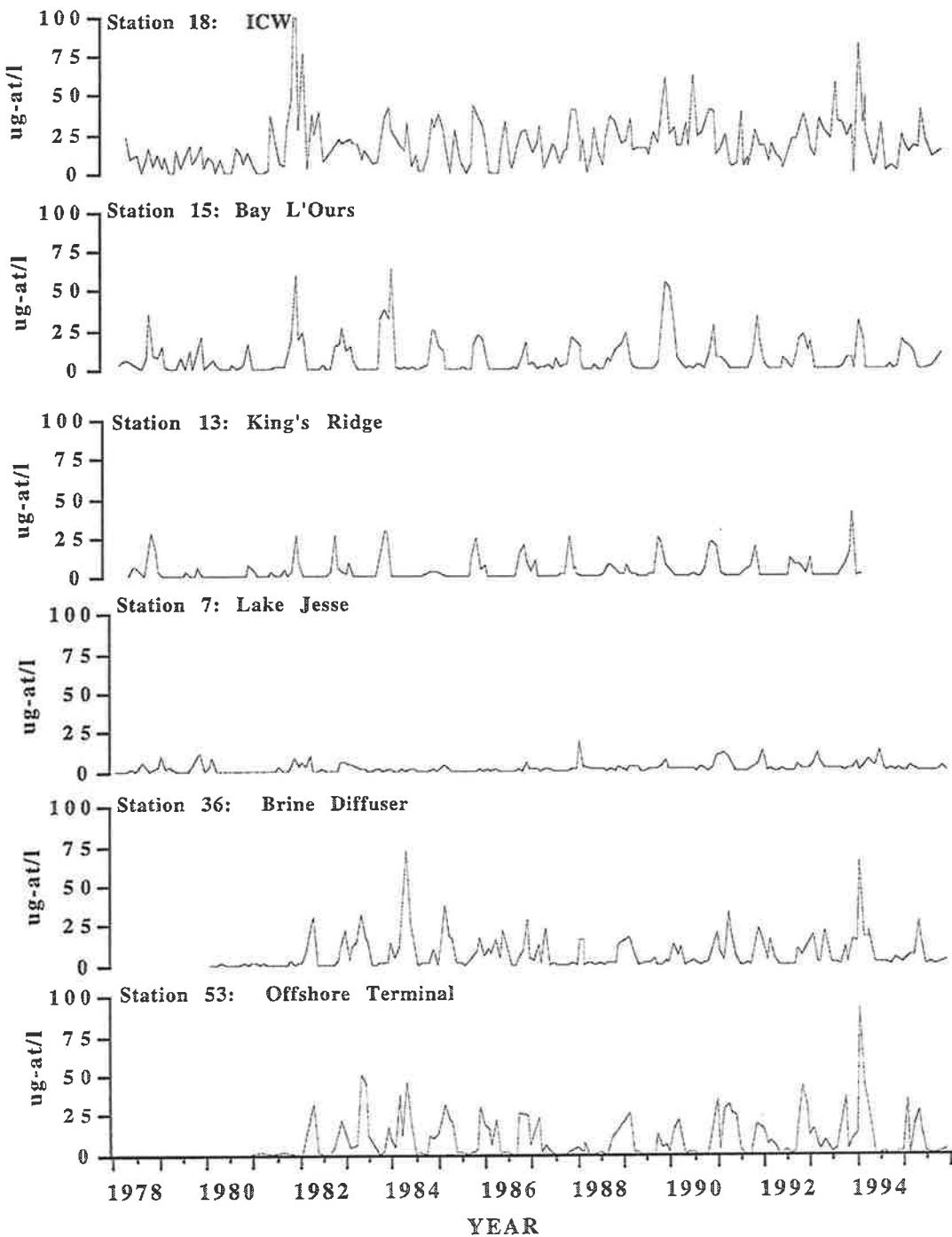


Figure D-5. Time series plots of monthly surface Nitrate-Nitrite for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Oxygen

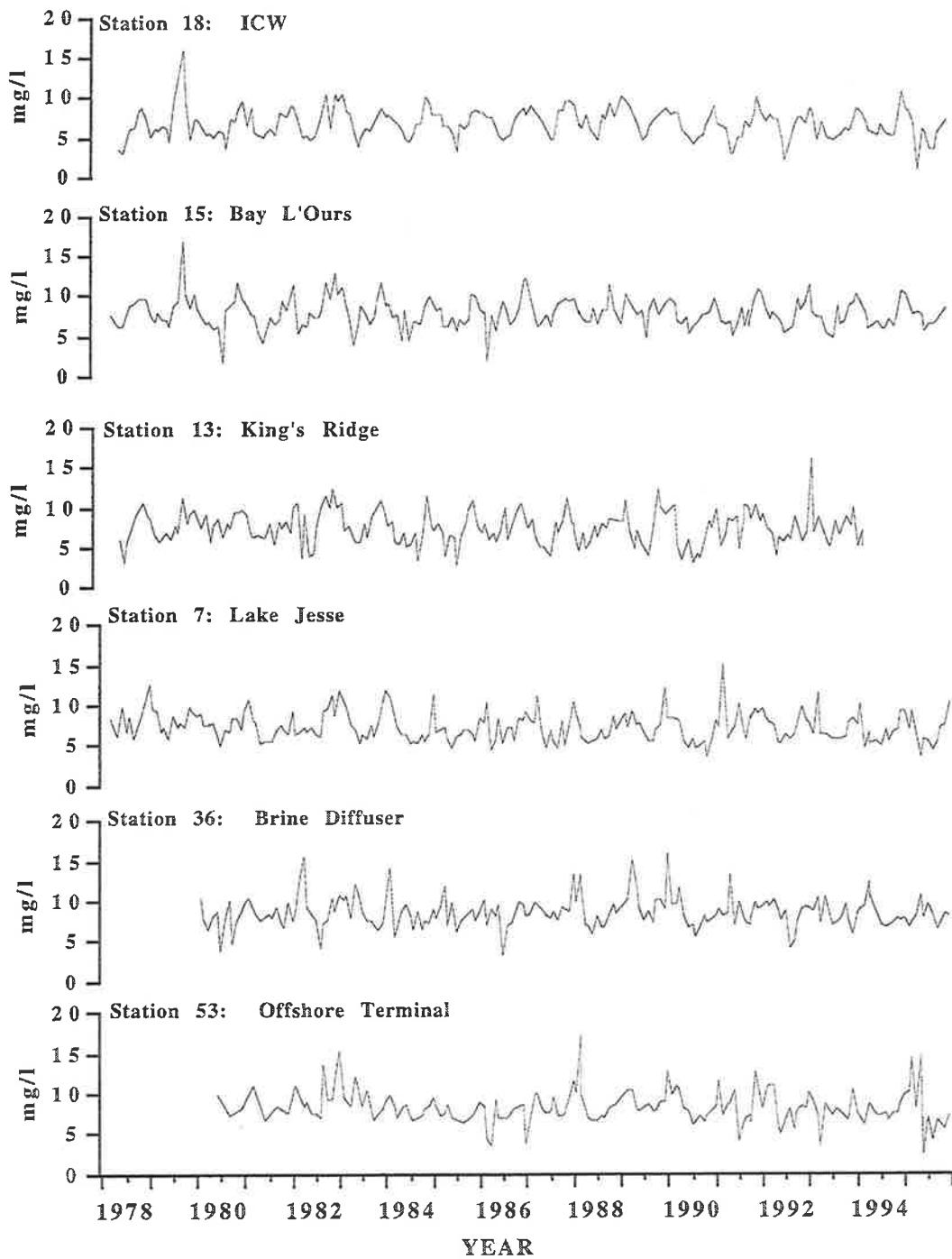


Figure D-6. Time series plots of monthly surface Oxygen for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Phosphate

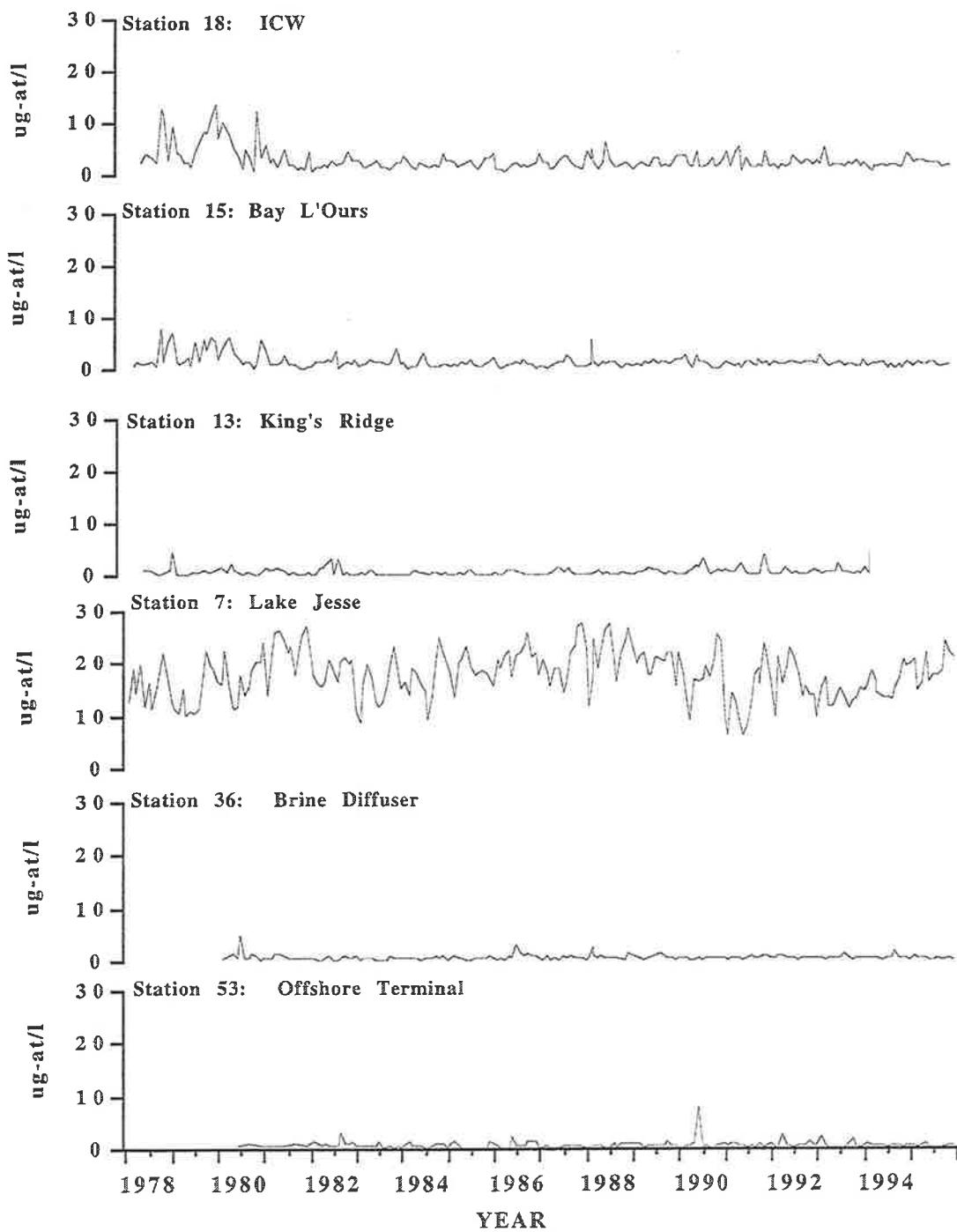


Figure D-7. Time series plots of monthly surface Phosphate for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Salinity

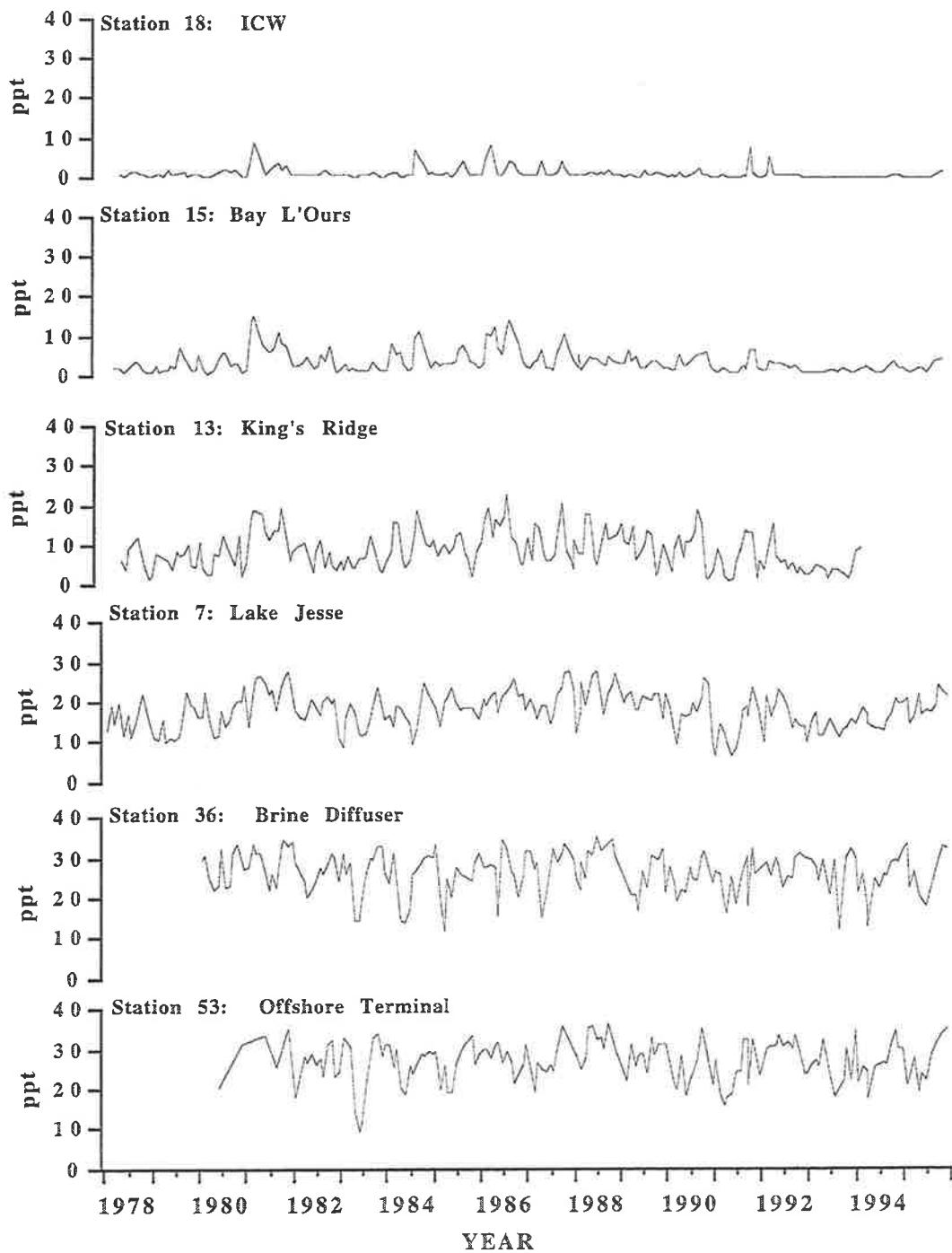


Figure D-8. Time series plots of monthly surface Salinity for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Silica

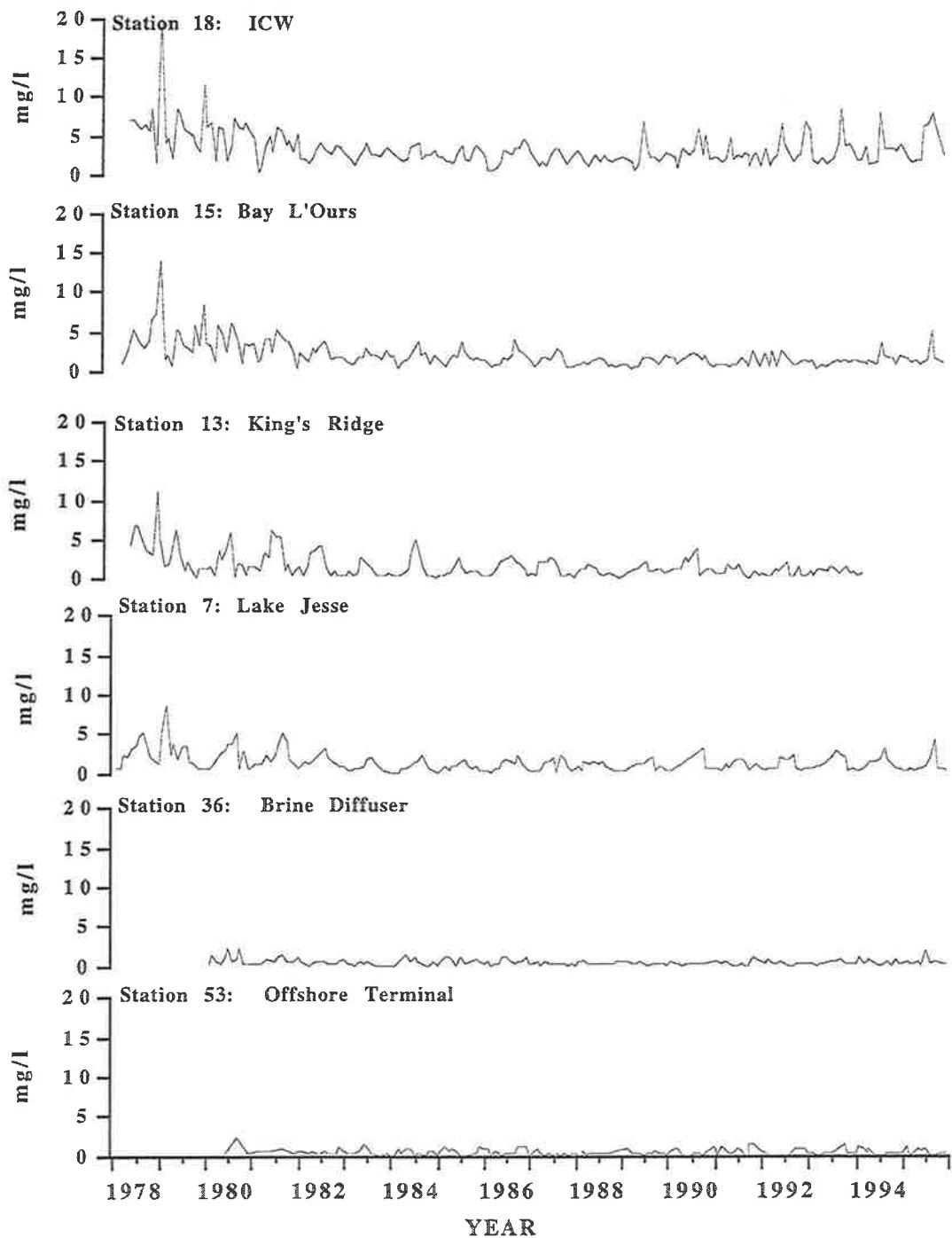


Figure D-9. Time series plots of monthly surface Silica for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

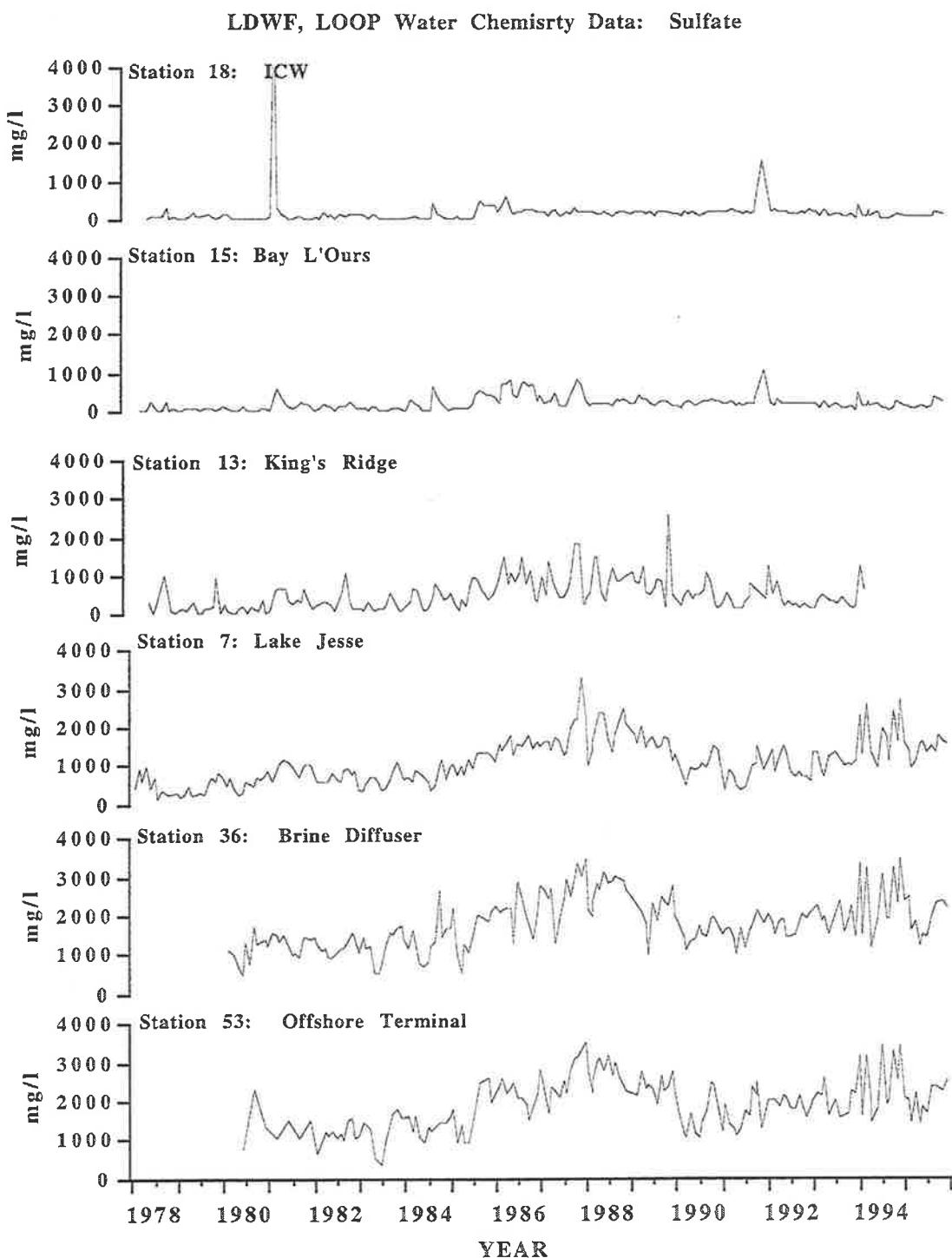


Figure D-10. Time series plots of monthly surface Sulfate for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Suspended Solids

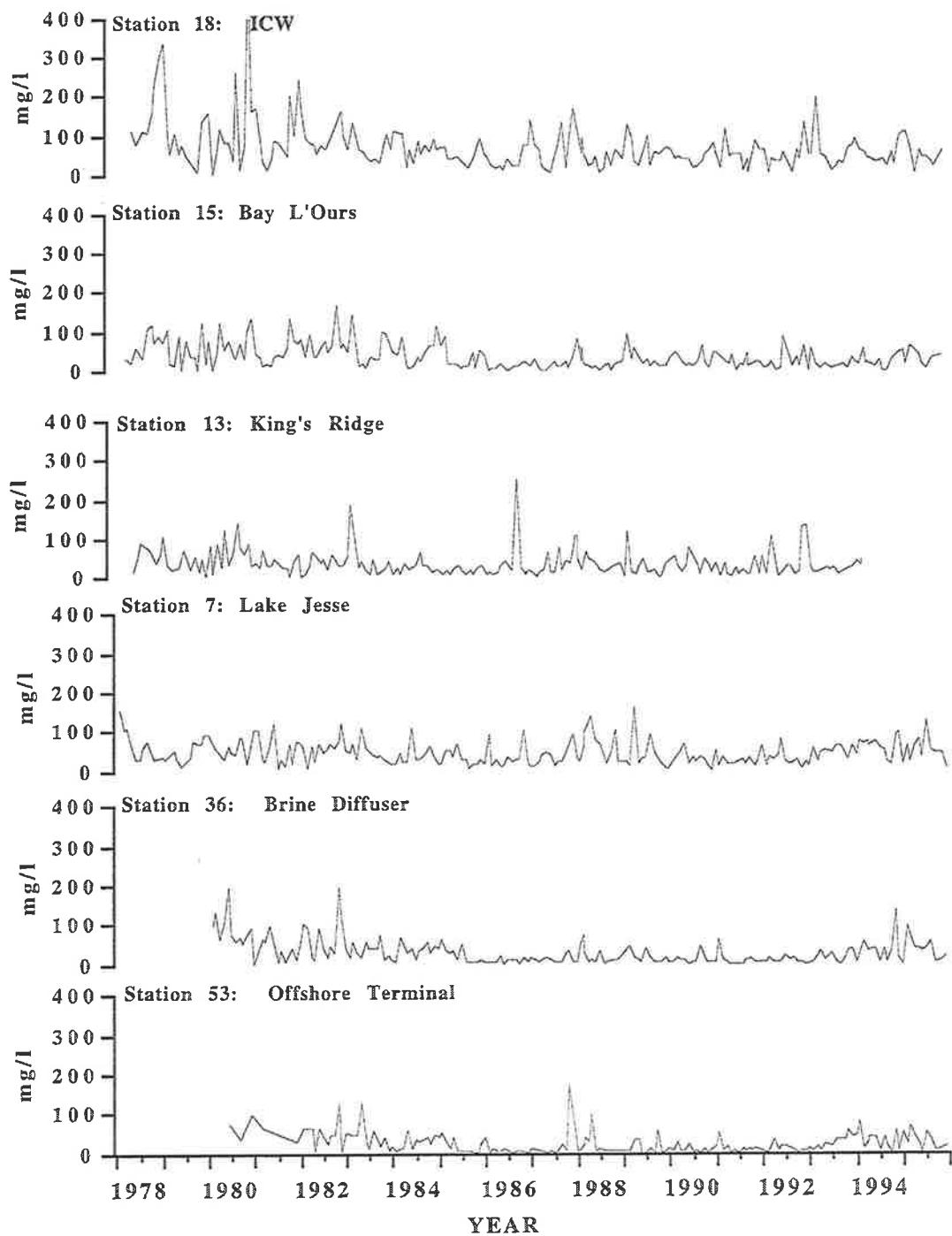


Figure D-11. Time series plots of monthly surface Suspended Solids (divided by 10) for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Total Dissolved Solids / 10

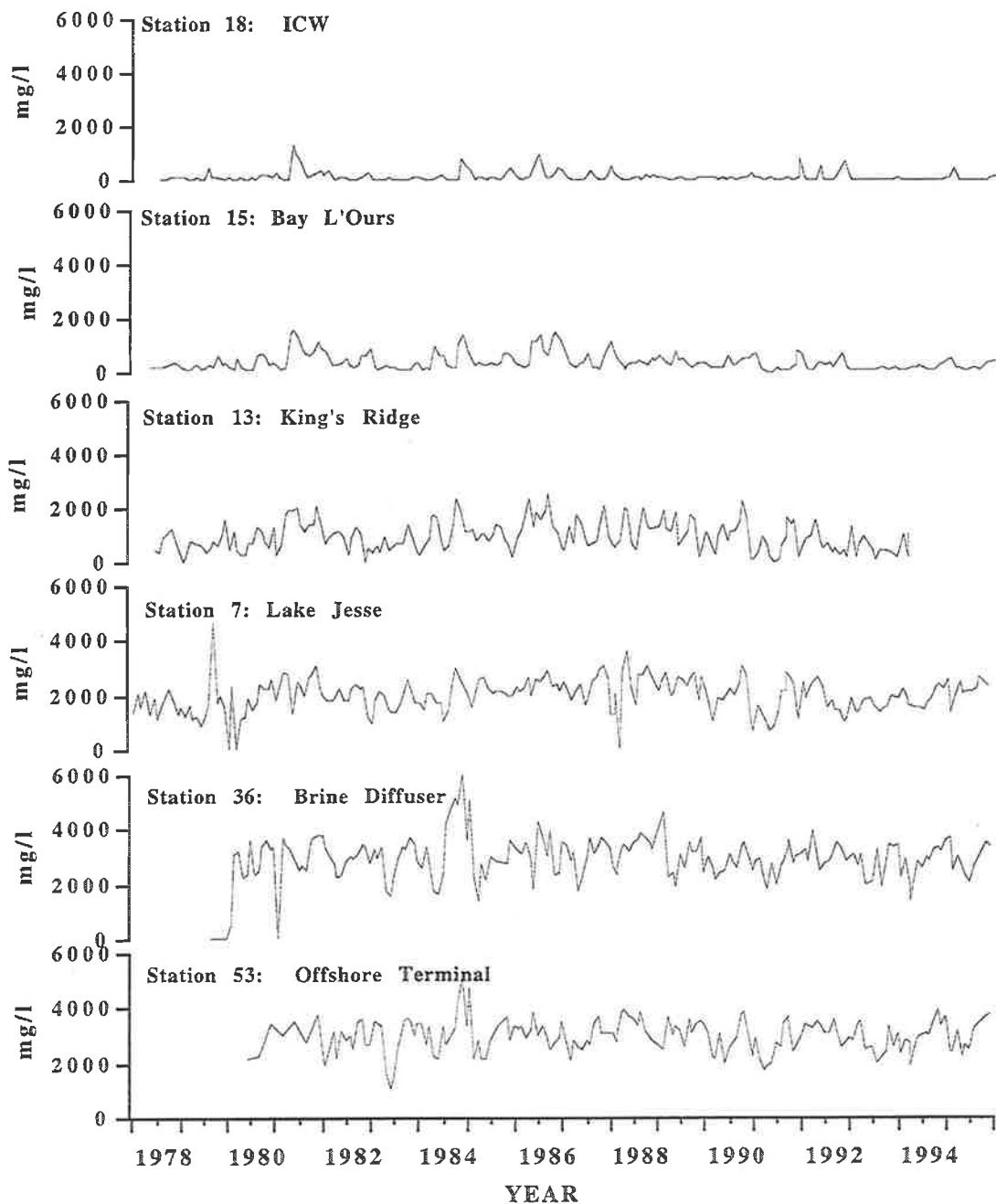


Figure D-12. Time series plots of monthly surface Total Dissolved Solids (divided by 10) for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Total Solids / 10

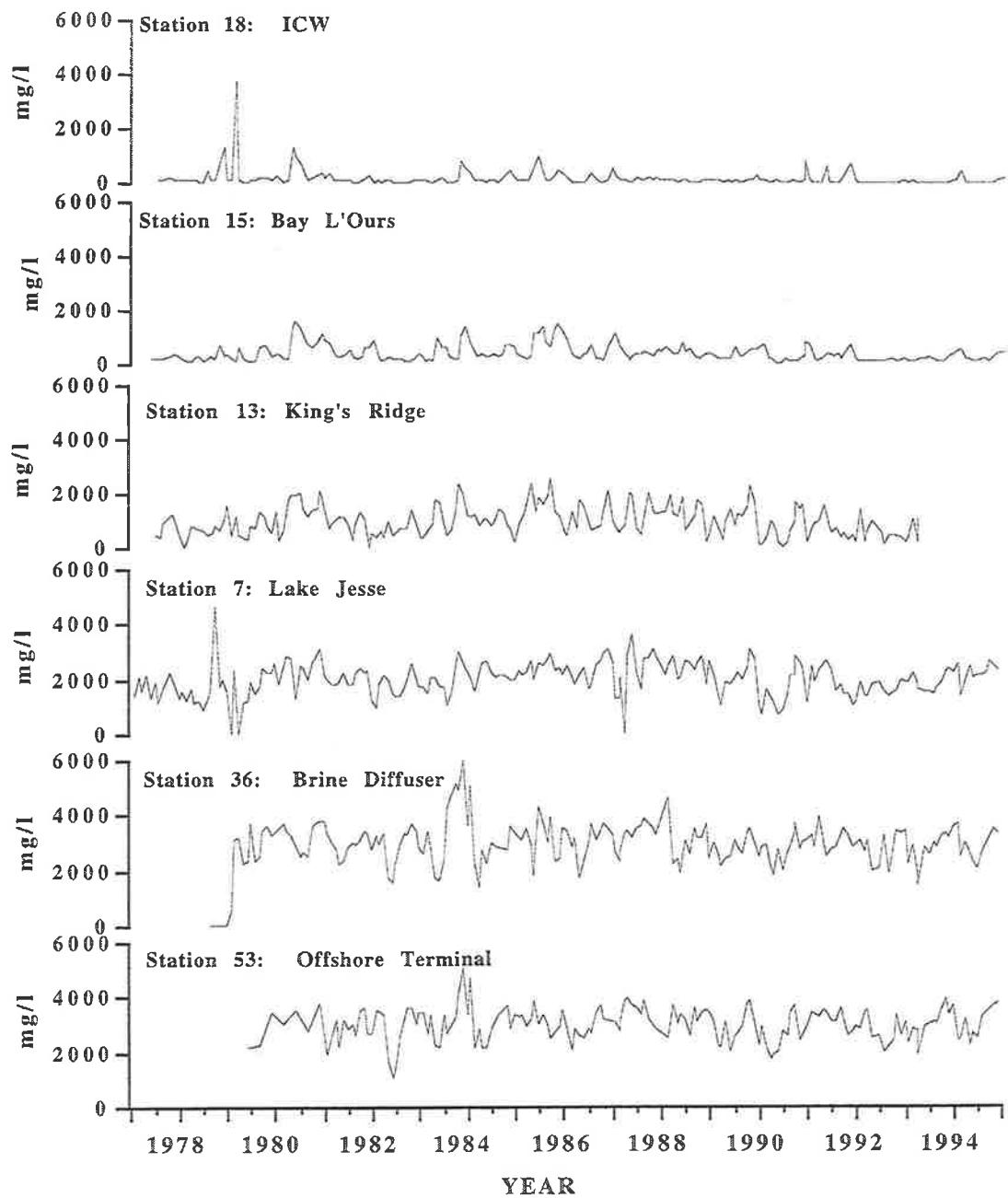


Figure D-13. Time series plots of monthly surface Total Solids (divided by 10) for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Total Kjeldahl Nitrogen

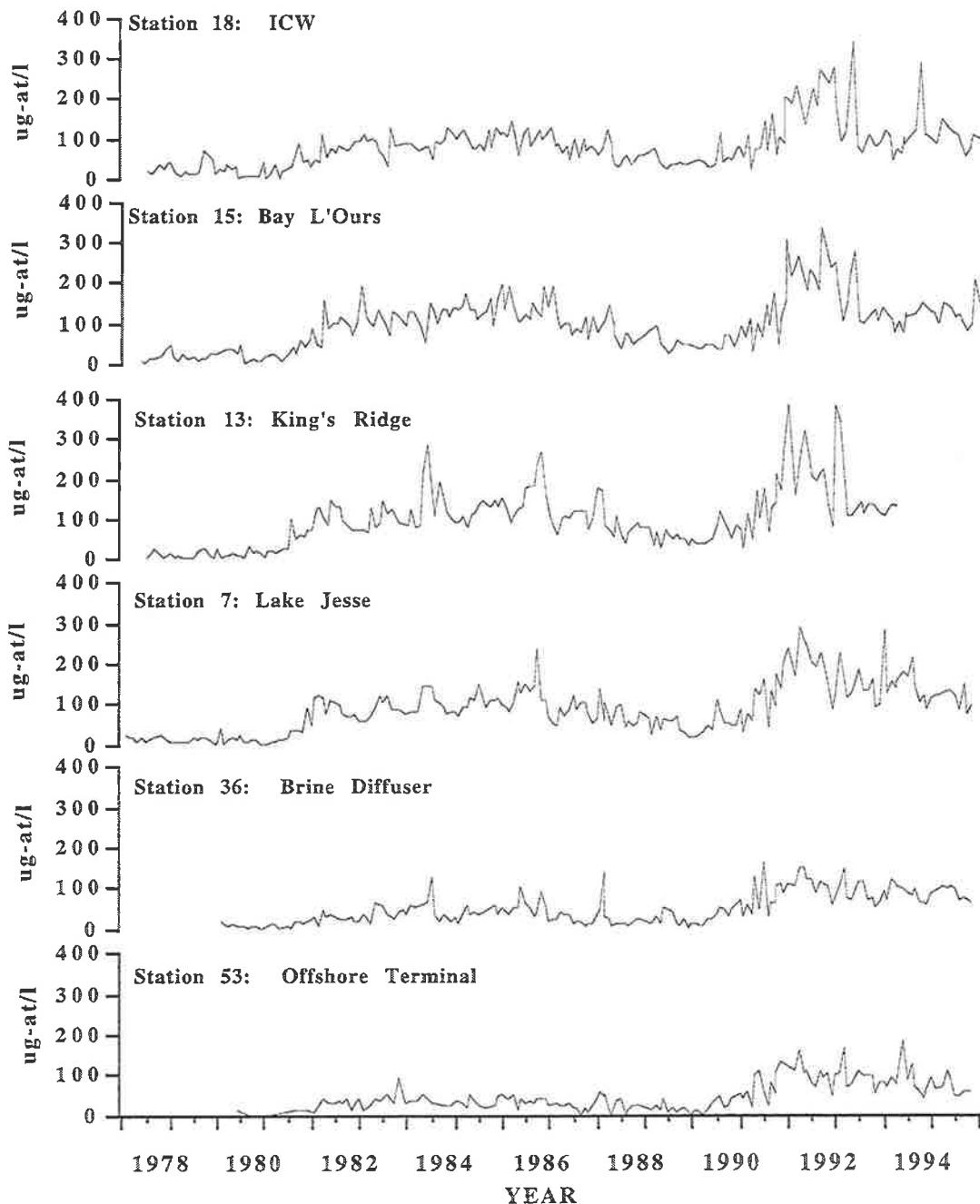


Figure D-14. Time series plots of monthly surface Total Kjeldahl Nitrogen for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Total Phosphorus

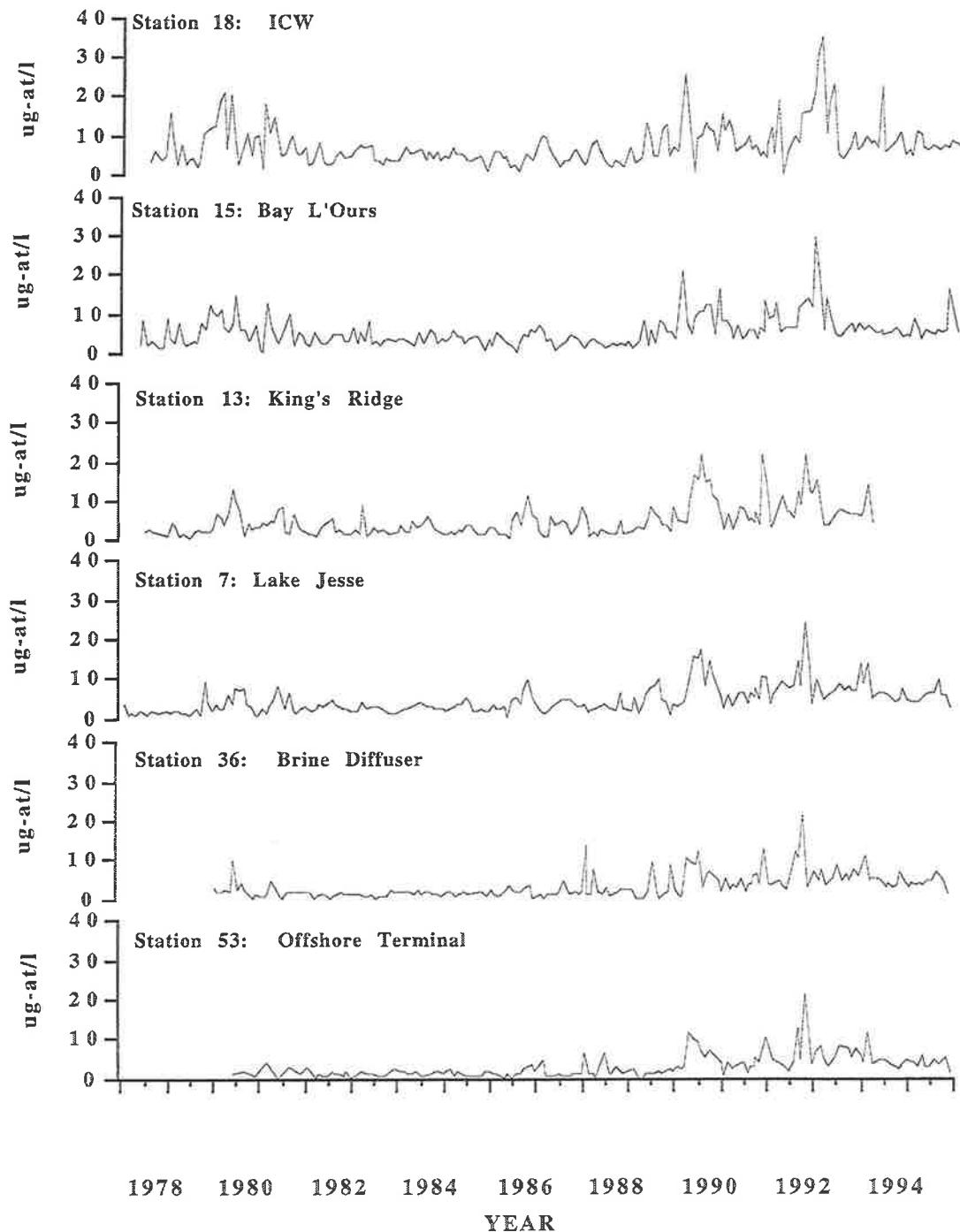


Figure D-15. Time series plots of monthly surface Total Phosphorus for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

LDWF, LOOP Water Chemistry Data: Turbidity

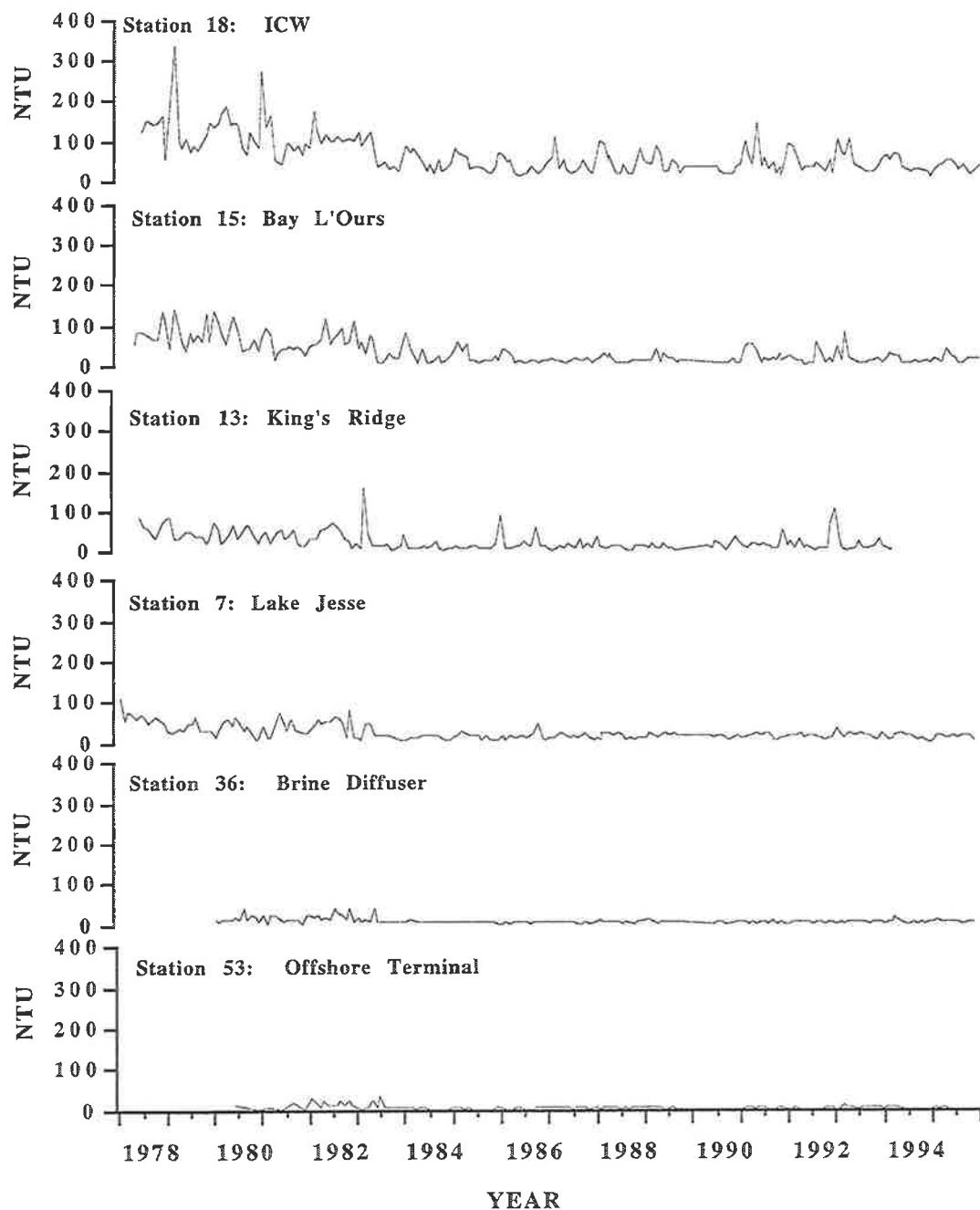


Figure D-16. Time series plots of monthly surface Turbidity for six selected stations from the LDWF LOOP water chemistry data base. The stations are arranged in order from the Intracoastal Waterway to the Offshore Terminal to illustrate any gradient that may exist in the system.

Appendix E. Long term trends from LDWF LOOP water chemistry stations.

Alkalinity

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
ALK1	Monthly	5	209	101.958	0.151	0.003	0.649	0.421
ALK1	Monthly	7	220	115.086	-0.281	0.007	1.632	0.203
ALK1	Monthly	12	140	130.630	-0.994	0.030	4.295	0.040
ALK1	Monthly	13	183	119.303	-0.961	0.042	8.054	0.005
ALK1	Monthly	14	202	76.327	-0.383	0.016	3.264	0.072
ALK1	Monthly	15	204	86.700	-0.313	0.009	1.800	0.181
ALK1	Monthly	16	84	20.463	2.948	0.103	9.481	0.003
ALK1	Monthly	18	198	77.977	-0.040	0.000	0.028	0.867
ALK1	Monthly	21	198	102.876	0.294	0.017	3.436	0.065
ALK1	Monthly	22	214	94.912	0.625	0.053	12.025	0.001
ALK1	Monthly	34	197	110.132	0.244	0.004	0.854	0.357
ALK1	Monthly	35	185	104.194	0.315	0.016	2.911	0.090
ALK1	Monthly	36	181	110.568	0.115	0.004	0.715	0.399
ALK1	Monthly	37	186	110.311	0.141	0.004	0.785	0.377
ALK1	Monthly	38	185	96.916	-0.343	0.008	1.417	0.235
ALK1	Monthly	52	152	98.190	0.471	0.024	3.669	0.057
ALK1	Monthly	53	158	107.995	0.202	0.010	1.599	0.208
ALK1	Monthly	54	153	109.695	0.135	0.005	0.737	0.392
ALK1	Quarterly	435	62	115.660	-0.126	0.003	0.212	0.647
ALK1	Quarterly	461	12	19.627	1.952	0.281	4.307	0.062
ALK1	Quarterly	462	9	222.240	-3.742	0.282	3.142	0.114
ALK1	Quarterly	463	12	82.647	-0.042	0.000	0.003	0.956
ALK1	Quarterly	464	12	103.122	-1.076	0.154	2.004	0.185
ALK1	Quarterly	473	63	102.679	0.336	0.024	1.494	0.226
ALK1	Quarterly	474	62	101.438	0.393	0.036	2.308	0.134
ALK1	Quarterly	475	61	108.936	0.137	0.005	0.312	0.579
ALK1	Quarterly	481	60	107.237	0.219	0.020	1.211	0.276
ALK1	Quarterly	482	60	87.354	0.866	0.059	3.706	0.059
ALK1	Quarterly	484	58	110.668	0.127	0.007	0.400	0.529
ALK3	Monthly	5	199	103.126	0.267	0.014	2.741	0.099
ALK3	Monthly	7	57	134.781	-0.943	0.093	5.726	0.020
ALK3	Monthly	18	172	77.913	-0.061	0.000	0.050	0.823
ALK3	Monthly	21	195	106.725	0.310	0.041	8.343	0.004
ALK3	Monthly	22	208	101.854	0.507	0.063	13.969	0.000
ALK3	Monthly	35	184	108.183	0.314	0.036	6.928	0.009
ALK3	Monthly	36	180	111.377	0.211	0.009	1.558	0.214
ALK3	Monthly	37	185	109.157	0.196	0.008	1.505	0.221
ALK3	Monthly	38	180	96.031	-0.287	0.006	1.080	0.300
ALK3	Monthly	52	149	116.519	0.138	0.012	1.795	0.182
ALK3	Monthly	53	157	105.681	0.488	0.036	5.860	0.017
ALK3	Monthly	54	154	109.778	0.340	0.062	10.092	0.002
ALK3	Quarterly	435	59	106.434	0.360	0.069	4.280	0.043
ALK3	Quarterly	461	52	80.961	0.674	0.022	1.173	0.284
ALK3	Quarterly	462	59	127.788	-0.629	0.041	2.472	0.121
ALK3	Quarterly	463	56	88.954	0.149	0.001	0.076	0.783
ALK3	Quarterly	464	56	87.560	-0.100	0.001	0.033	0.856
ALK3	Quarterly	473	60	105.986	0.321	0.021	1.280	0.262
ALK3	Quarterly	474	59	104.006	0.443	0.073	4.573	0.037
ALK3	Quarterly	475	59	96.854	0.677	0.107	6.930	0.011
ALK3	Quarterly	481	57	113.514	0.395	0.002	0.132	0.718
ALK3	Quarterly	482	56	111.250	0.310	0.115	7.158	0.010
ALK3	Quarterly	484	55	104.887	0.487	0.117	7.172	0.010

Ammonia

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
AMMONIA1	Monthly	5	207	4.748	-0.072	0.017	3.482	0.063
AMMONIA1	Monthly	7	217	1.465	0.055	0.006	1.200	0.275
AMMONIA1	Monthly	12	139	5.305	-0.064	0.003	0.384	0.536
AMMONIA1	Monthly	13	181	3.924	-0.024	0.001	0.127	0.722
AMMONIA1	Monthly	14	205	6.475	-0.080	0.004	0.784	0.377
AMMONIA1	Monthly	15	205	6.355	-0.116	0.017	3.448	0.065
AMMONIA1	Monthly	16	86	12.835	-0.216	0.001	0.123	0.727
AMMONIA1	Monthly	18	200	8.887	-0.132	0.014	2.834	0.094
AMMONIA1	Monthly	21	197	4.153	-0.059	0.008	1.565	0.212
AMMONIA1	Monthly	22	211	3.540	-0.057	0.014	2.983	0.086
AMMONIA1	Monthly	34	195	5.388	0.079	0.002	0.460	0.498
AMMONIA1	Monthly	35	184	3.457	-0.044	0.005	0.908	0.342
AMMONIA1	Monthly	36	180	4.614	-0.088	0.013	2.327	0.129
AMMONIA1	Monthly	37	186	3.512	0.022	0.001	0.120	0.729
AMMONIA1	Monthly	38	186	14.236	-0.350	0.039	7.603	0.006
AMMONIA1	Monthly	52	151	3.430	-0.070	0.029	4.550	0.035
AMMONIA1	Monthly	53	157	2.669	-0.051	0.026	4.106	0.044
AMMONIA1	Monthly	54	152	2.798	-0.055	0.040	6.296	0.013
AMMONIA1	Quarterly	435	59	3.709	-0.084	0.108	7.011	0.010
AMMONIA1	Quarterly	461	12	10.460	-0.200	0.031	0.346	0.568
AMMONIA1	Quarterly	462	9	-20.872	0.748	0.196	1.947	0.200
AMMONIA1	Quarterly	463	12	18.463	-0.467	0.191	2.589	0.136
AMMONIA1	Quarterly	464	12	9.595	-0.239	0.148	1.914	0.194
AMMONIA1	Quarterly	473	61	2.070	-0.015	0.002	0.125	0.725
AMMONIA1	Quarterly	474	60	3.239	-0.058	0.033	2.030	0.159
AMMONIA1	Quarterly	475	59	5.030	-0.121	0.098	6.313	0.015
AMMONIA1	Quarterly	481	58	1.624	-0.020	0.009	0.511	0.478
AMMONIA1	Quarterly	482	58	1.969	-0.023	0.006	0.334	0.566
AMMONIA1	Quarterly	484	55	1.021	0.004	0.000	0.018	0.895
AMMONIA3	Monthly	5	198	4.794	-0.062	0.009	1.808	0.180
AMMONIA3	Monthly	7	56	-1.604	0.166	0.061	3.567	0.064
AMMONIA3	Monthly	18	172	7.715	-0.064	0.002	0.351	0.554
AMMONIA3	Monthly	21	195	2.310	0.098	0.006	1.249	0.265
AMMONIA3	Monthly	22	211	2.479	0.111	0.005	1.135	0.288
AMMONIA3	Monthly	35	184	0.791	0.178	0.011	2.123	0.147
AMMONIA3	Monthly	36	179	3.196	0.085	0.002	0.440	0.508
AMMONIA3	Monthly	37	184	5.245	-0.017	0.000	0.048	0.827
AMMONIA3	Monthly	38	182	16.019	-0.403	0.050	9.486	0.002
AMMONIA3	Monthly	52	150	1.488	-0.017	0.004	0.524	0.470
AMMONIA3	Monthly	53	156	1.445	-0.004	0.000	0.014	0.907
AMMONIA3	Monthly	54	152	1.594	0.001	0.000	0.001	0.976
AMMONIA3	Quarterly	435	58	-0.176	0.193	0.033	1.958	0.167
AMMONIA3	Quarterly	461	51	-0.138	0.189	0.010	0.530	0.470
AMMONIA3	Quarterly	462	58	-0.494	0.119	0.031	1.848	0.179
AMMONIA3	Quarterly	463	54	7.323	-0.077	0.002	0.090	0.765
AMMONIA3	Quarterly	464	55	3.223	0.067	0.001	0.063	0.802
AMMONIA3	Quarterly	473	58	1.166	0.144	0.014	0.806	0.373
AMMONIA3	Quarterly	474	57	2.894	0.079	0.004	0.242	0.625
AMMONIA3	Quarterly	475	57	1.237	0.123	0.017	0.970	0.329
AMMONIA3	Quarterly	481	55	1.385	-0.001	0.000	0.000	0.987
AMMONIA3	Quarterly	482	53	3.622	-0.075	0.035	1.874	0.177
AMMONIA3	Quarterly	484	52	1.050	0.002	0.000	0.002	0.961

Calcium

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
CALCIUM1	Monthly	5	209	224.892	1.561	0.011	2.266	0.134
CALCIUM1	Monthly	7	220	236.413	-0.598	0.002	0.519	0.472
CALCIUM1	Monthly	12	141	249.213	-4.060	0.088	13.466	0.000
CALCIUM1	Monthly	13	184	197.897	-2.764	0.038	7.219	0.008
CALCIUM1	Monthly	14	205	146.413	-2.855	0.046	9.833	0.002
CALCIUM1	Monthly	15	206	158.750	-3.325	0.091	20.575	0.000
CALCIUM1	Monthly	16	85	232.226	-7.366	0.065	5.844	0.018
CALCIUM1	Monthly	18	200	76.929	-1.230	0.026	5.371	0.021
CALCIUM1	Monthly	21	199	254.918	1.759	0.010	1.949	0.164
CALCIUM1	Monthly	22	214	258.680	1.587	0.010	2.087	0.150
CALCIUM1	Monthly	34	197	286.036	-0.053	0.000	0.003	0.958
CALCIUM1	Monthly	35	185	357.634	-1.818	0.022	4.054	0.046
CALCIUM1	Monthly	36	181	375.737	-2.309	0.019	3.570	0.060
CALCIUM1	Monthly	37	187	313.224	-0.798	0.005	0.879	0.350
CALCIUM1	Monthly	38	187	131.904	-2.459	0.073	14.619	0.000
CALCIUM1	Monthly	52	152	238.711	2.544	0.031	4.856	0.029
CALCIUM1	Monthly	53	158	231.365	2.684	0.037	5.959	0.016
CALCIUM1	Monthly	54	153	252.486	1.788	0.016	2.449	0.120
CALCIUM1	Quarterly	435	62	281.265	0.596	0.003	0.157	0.694
CALCIUM1	Quarterly	461	12	89.521	-1.512	0.122	1.523	0.243
CALCIUM1	Quarterly	462	9	616.001	-13.379	0.219	2.243	0.173
CALCIUM1	Quarterly	463	12	127.531	-2.508	0.176	2.354	0.153
CALCIUM1	Quarterly	464	12	137.391	-2.889	0.282	4.311	0.062
CALCIUM1	Quarterly	473	63	335.362	-1.486	0.012	0.771	0.383
CALCIUM1	Quarterly	474	62	302.482	-0.421	0.001	0.077	0.783
CALCIUM1	Quarterly	475	61	313.788	-0.795	0.004	0.234	0.631
CALCIUM1	Quarterly	481	60	359.555	-1.701	0.016	0.959	0.332
CALCIUM1	Quarterly	482	60	335.394	-1.083	0.006	0.348	0.558
CALCIUM1	Quarterly	484	58	367.099	-1.720	0.015	0.895	0.348
CALCIUM3	Monthly	5	199	253.505	0.729	0.003	0.530	0.467
CALCIUM3	Monthly	7	57	270.008	-1.197	0.009	0.530	0.470
CALCIUM3	Monthly	18	173	68.220	-0.845	0.011	1.873	0.173
CALCIUM3	Monthly	21	196	223.416	3.949	0.059	12.169	0.001
CALCIUM3	Monthly	22	212	256.375	3.412	0.044	9.645	0.002
CALCIUM3	Monthly	35	185	378.081	-0.801	0.005	0.856	0.356
CALCIUM3	Monthly	36	180	372.287	-0.509	0.002	0.309	0.579
CALCIUM3	Monthly	37	185	371.656	-2.651	0.025	4.808	0.030
CALCIUM3	Monthly	38	182	134.107	-2.532	0.089	17.583	0.000
CALCIUM3	Monthly	52	150	335.608	2.139	0.049	7.628	0.006
CALCIUM3	Monthly	53	157	335.543	2.227	0.048	7.781	0.006
CALCIUM3	Monthly	54	154	312.820	2.839	0.074	12.167	0.001
CALCIUM3	Quarterly	435	59	328.714	1.015	0.010	0.557	0.459
CALCIUM3	Quarterly	461	52	111.561	-1.510	0.022	1.159	0.287
CALCIUM3	Quarterly	462	59	280.951	-1.754	0.022	1.323	0.255
CALCIUM3	Quarterly	463	56	118.206	-2.072	0.093	5.652	0.021
CALCIUM3	Quarterly	464	57	159.381	-3.397	0.128	8.213	0.006
CALCIUM3	Quarterly	473	60	341.366	0.594	0.003	0.205	0.653
CALCIUM3	Quarterly	474	59	342.508	0.448	0.002	0.134	0.716
CALCIUM3	Quarterly	475	59	278.920	2.719	0.085	5.366	0.024
CALCIUM3	Quarterly	481	57	455.143	-0.842	0.000	0.018	0.893
CALCIUM3	Quarterly	482	56	440.502	-1.280	0.011	0.612	0.437
CALCIUM3	Quarterly	484	55	349.995	1.779	0.018	0.965	0.330

Chlorophyll

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
CHLOR_A1	Monthly	5	204	12.014	0.013	0.000	0.007	0.932
CHLOR_A1	Monthly	7	243	24.747	-0.401	0.059	15.182	0.000
CHLOR_A1	Monthly	12	133	53.913	-1.223	0.057	8.052	0.005
CHLOR_A1	Monthly	13	175	32.070	-0.541	0.027	4.848	0.029
CHLOR_A1	Monthly	14	196	27.349	-0.644	0.182	43.386	0.000
CHLOR_A1	Monthly	15	200	26.307	-0.391	0.027	5.560	0.019
CHLOR_A1	Monthly	16	79	10.050	0.620	0.006	0.495	0.484
CHLOR_A1	Monthly	18	185	21.606	-0.310	0.028	5.204	0.024
CHLOR_A1	Monthly	21	189	6.231	0.070	0.001	0.168	0.683
CHLOR_A1	Monthly	22	206	5.390	0.110	0.002	0.417	0.519
CHLOR_A1	Monthly	34	191	19.934	-0.166	0.004	0.717	0.398
CHLOR_A1	Monthly	35	181	4.892	0.107	0.002	0.334	0.564
CHLOR_A1	Monthly	36	177	1.746	0.207	0.006	1.067	0.303
CHLOR_A1	Monthly	37	183	10.439	0.033	0.000	0.074	0.785
CHLOR_A1	Monthly	38	177	26.799	-0.105	0.001	0.230	0.632
CHLOR_A1	Monthly	52	150	3.671	0.057	0.001	0.195	0.659
CHLOR_A1	Monthly	53	156	2.659	0.070	0.002	0.363	0.548
CHLOR_A1	Monthly	54	154	4.603	0.019	0.000	0.022	0.882
CHLOR_A1	Quarterly	435	61	5.788	0.128	0.001	0.080	0.778
CHLOR_A1	Quarterly	461	35	79.441	-1.685	0.073	2.665	0.112
CHLOR_A1	Quarterly	462	34	32.555	-0.555	0.078	2.788	0.104
CHLOR_A1	Quarterly	463	35	41.740	-0.417	0.007	0.237	0.629
CHLOR_A1	Quarterly	464	34	40.489	-0.803	0.073	2.614	0.115
CHLOR_A1	Quarterly	473	61	6.305	0.044	0.001	0.040	0.843
CHLOR_A1	Quarterly	474	58	7.510	0.006	0.000	0.001	0.980
CHLOR_A1	Quarterly	475	60	6.880	0.021	0.000	0.008	0.929
CHLOR_A1	Quarterly	481	59	15.028	-0.287	0.023	1.363	0.248
CHLOR_A1	Quarterly	482	56	15.079	-0.233	0.011	0.622	0.434
CHLOR_A1	Quarterly	484	55	8.328	-0.089	0.002	0.128	0.721
CHLOR_A3	Monthly	5	12	-22.939	1.413	0.102	1.252	0.287
CHLOR_A3	Monthly	7	26	25.380	-0.440	0.046	1.204	0.283
CHLOR_A3	Monthly	18	8	-151.670	7.712	0.170	1.429	0.271
CHLOR_A3	Monthly	21	166	3.552	0.036	0.001	0.155	0.695
CHLOR_A3	Monthly	22	165	5.201	-0.049	0.003	0.493	0.484
CHLOR_A3	Monthly	35	170	3.068	0.018	0.001	0.095	0.759
CHLOR_A3	Monthly	36	171	4.194	-0.015	0.000	0.056	0.813
CHLOR_A3	Monthly	37	159	7.172	0.136	0.004	0.664	0.416
CHLOR_A3	Monthly	38	8	-305.509	15.051	0.384	4.369	0.075
CHLOR_A3	Monthly	52	146	1.761	-0.027	0.003	0.436	0.510
CHLOR_A3	Monthly	53	154	1.017	-0.012	0.006	0.849	0.358
CHLOR_A3	Monthly	54	151	2.995	-0.065	0.031	4.813	0.030
CHLOR_A3	Quarterly	435	31	-3.310	0.204	0.043	1.359	0.253
CHLOR_A3	Quarterly	461	26	36.456	-0.551	0.019	0.472	0.498
CHLOR_A3	Quarterly	462	24	36.887	-0.788	0.111	2.872	0.104
CHLOR_A3	Quarterly	463	25	38.977	-0.512	0.016	0.393	0.537
CHLOR_A3	Quarterly	464	28	48.567	-1.131	0.140	4.408	0.045
CHLOR_A3	Quarterly	473	33	3.205	0.004	0.000	0.000	0.984
CHLOR_A3	Quarterly	474	31	3.604	0.006	0.000	0.001	0.978
CHLOR_A3	Quarterly	475	30	2.546	0.056	0.001	0.020	0.888
CHLOR_A3	Quarterly	481	30	0.288	0.019	0.002	0.050	0.825
CHLOR_A3	Quarterly	482	30	1.514	-0.020	0.001	0.041	0.842
CHLOR_A3	Quarterly	484	29	2.493	-0.053	0.011	0.316	0.579

DIN

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
DIN1	Monthly	5	205	3.518	0.211	0.009	1.871	0.173
DIN1	Monthly	7	215	2.112	0.091	0.007	1.460	0.228
DIN1	Monthly	12	139	12.662	-0.181	0.004	0.493	0.484
DIN1	Monthly	13	180	3.793	0.136	0.004	0.696	0.405
DIN1	Monthly	14	203	5.491	0.415	0.013	2.567	0.111
DIN1	Monthly	15	204	13.896	-0.144	0.003	0.589	0.444
DIN1	Monthly	16	85	-87.768	5.345	0.042	3.682	0.058
DIN1	Monthly	18	198	11.176	0.478	0.015	3.082	0.081
DIN1	Monthly	21	197	4.531	0.142	0.005	1.045	0.308
DIN1	Monthly	22	210	3.790	0.174	0.007	1.367	0.244
DIN1	Monthly	34	193	7.760	0.130	0.003	0.601	0.439
DIN1	Monthly	35	184	2.875	0.223	0.008	1.491	0.224
DIN1	Monthly	36	180	6.953	0.063	0.001	0.119	0.730
DIN1	Monthly	37	186	4.004	0.159	0.007	1.358	0.245
DIN1	Monthly	38	185	42.934	-1.089	0.040	7.643	0.006
DIN1	Monthly	52	150	10.793	0.017	0.000	0.003	0.954
DIN1	Monthly	53	157	8.167	0.090	0.001	0.116	0.734
DIN1	Monthly	54	151	10.340	0.016	0.000	0.003	0.953
DIN1	Quarterly	435	59	10.098	-0.020	0.000	0.003	0.954
DIN1	Quarterly	461	12	4.714	0.076	0.001	0.007	0.934
DIN1	Quarterly	462	9	-22.918	0.862	0.146	1.367	0.276
DIN1	Quarterly	463	12	11.185	-0.100	0.001	0.014	0.909
DIN1	Quarterly	464	12	4.061	0.076	0.001	0.013	0.910
DIN1	Quarterly	473	61	9.696	0.053	0.000	0.022	0.883
DIN1	Quarterly	474	59	14.410	-0.130	0.002	0.131	0.718
DIN1	Quarterly	475	59	11.028	-0.019	0.000	0.003	0.955
DIN1	Quarterly	481	58	18.056	-0.224	0.004	0.201	0.656
DIN1	Quarterly	482	57	14.323	-0.062	0.000	0.016	0.899
DIN1	Quarterly	484	55	9.972	0.005	0.000	0.000	0.991
DIN3	Monthly	5	196	2.966	0.243	0.012	2.415	0.122
DIN3	Monthly	7	56	-1.239	0.196	0.053	3.077	0.085
DIN3	Monthly	18	170	26.062	0.021	0.000	0.003	0.953
DIN3	Monthly	21	195	-2.194	0.477	0.076	16.040	0.000
DIN3	Monthly	22	211	-0.518	0.424	0.052	11.569	0.001
DIN3	Monthly	35	184	-2.834	0.513	0.061	11.941	0.001
DIN3	Monthly	36	179	-1.046	0.438	0.047	8.719	0.004
DIN3	Monthly	37	184	6.714	0.089	0.002	0.384	0.536
DIN3	Monthly	38	181	44.886	-1.136	0.041	7.626	0.006
DIN3	Monthly	52	150	-4.830	0.432	0.106	17.659	0.000
DIN3	Monthly	53	156	-3.373	0.379	0.096	16.543	0.000
DIN3	Monthly	54	151	-4.717	0.455	0.114	19.294	0.000
DIN3	Quarterly	435	58	0.999	0.364	0.068	4.189	0.045
DIN3	Quarterly	461	49	8.885	0.011	0.000	0.001	0.981
DIN3	Quarterly	462	57	-3.028	0.250	0.082	4.972	0.030
DIN3	Quarterly	463	52	11.828	0.004	0.000	0.000	0.995
DIN3	Quarterly	464	54	0.354	0.425	0.011	0.611	0.438
DIN3	Quarterly	473	58	4.054	0.267	0.035	2.059	0.157
DIN3	Quarterly	474	57	5.901	0.198	0.018	1.033	0.314
DIN3	Quarterly	475	57	0.498	0.356	0.065	3.875	0.054
DIN3	Quarterly	481	55	-4.975	0.444	0.120	7.346	0.009
DIN3	Quarterly	482	53	-2.625	0.362	0.086	4.880	0.032
DIN3	Quarterly	484	52	-2.688	0.344	0.085	4.753	0.034

NO3-NO2

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
NO3NO2_1	Monthly	5	207	-1.405	0.291	0.021	4.380	0.038
NO3NO2_1	Monthly	7	217	0.720	0.033	0.003	0.746	0.389
NO3NO2_1	Monthly	12	140	7.522	-0.124	0.003	0.404	0.526
NO3NO2_1	Monthly	13	182	0.169	0.147	0.008	1.498	0.223
NO3NO2_1	Monthly	14	203	-0.935	0.493	0.024	5.001	0.026
NO3NO2_1	Monthly	15	205	7.821	-0.040	0.000	0.068	0.795
NO3NO2_1	Monthly	16	85	-101.907	5.638	0.054	4.820	0.031
NO3NO2_1	Monthly	18	198	2.525	0.602	0.030	6.101	0.014
NO3NO2_1	Monthly	21	198	-0.321	0.231	0.016	3.118	0.079
NO3NO2_1	Monthly	22	210	0.272	0.229	0.012	2.581	0.110
NO3NO2_1	Monthly	34	195	2.303	0.053	0.001	0.284	0.595
NO3NO2_1	Monthly	35	184	-0.582	0.268	0.014	2.579	0.110
NO3NO2_1	Monthly	36	180	2.339	0.152	0.005	0.819	0.367
NO3NO2_1	Monthly	37	187	0.541	0.135	0.007	1.381	0.241
NO3NO2_1	Monthly	38	186	28.853	-0.746	0.027	5.072	0.025
NO3NO2_1	Monthly	52	151	7.219	0.091	0.001	0.106	0.745
NO3NO2_1	Monthly	53	158	5.506	0.141	0.002	0.306	0.581
NO3NO2_1	Monthly	54	153	6.076	0.130	0.002	0.236	0.628
NO3NO2_1	Quarterly	435	59	6.389	0.064	0.001	0.037	0.849
NO3NO2_1	Quarterly	461	12	-5.746	0.276	0.018	0.199	0.664
NO3NO2_1	Quarterly	462	9	-2.046	0.114	0.006	0.050	0.829
NO3NO2_1	Quarterly	463	12	-7.278	0.367	0.029	0.326	0.579
NO3NO2_1	Quarterly	464	12	-5.534	0.315	0.026	0.296	0.597
NO3NO2_1	Quarterly	473	61	7.626	0.068	0.001	0.038	0.846
NO3NO2_1	Quarterly	474	59	11.041	-0.068	0.001	0.036	0.850
NO3NO2_1	Quarterly	475	59	5.998	0.101	0.002	0.093	0.762
NO3NO2_1	Quarterly	481	58	16.431	-0.204	0.003	0.171	0.681
NO3NO2_1	Quarterly	482	57	12.370	-0.041	0.000	0.007	0.934
NO3NO2_1	Quarterly	484	56	8.116	0.025	0.000	0.004	0.950
NO3NO2_3	Monthly	5	197	-1.789	0.303	0.023	4.678	0.032
NO3NO2_3	Monthly	7	57	0.322	0.032	0.008	0.447	0.507
NO3NO2_3	Monthly	18	170	18.208	0.089	0.000	0.077	0.782
NO3NO2_3	Monthly	21	195	-4.504	0.380	0.072	15.052	0.000
NO3NO2_3	Monthly	22	211	-2.997	0.313	0.064	14.287	0.000
NO3NO2_3	Monthly	35	184	-3.625	0.335	0.054	10.473	0.001
NO3NO2_3	Monthly	36	179	-4.242	0.354	0.060	11.407	0.001
NO3NO2_3	Monthly	37	185	1.518	0.104	0.004	0.815	0.368
NO3NO2_3	Monthly	38	181	28.950	-0.736	0.024	4.423	0.037
NO3NO2_3	Monthly	52	151	-6.281	0.448	0.111	18.771	0.000
NO3NO2_3	Monthly	53	157	-4.686	0.379	0.102	17.730	0.000
NO3NO2_3	Monthly	54	152	-6.173	0.450	0.109	18.482	0.000
NO3NO2_3	Quarterly	435	58	1.175	0.171	0.020	1.148	0.289
NO3NO2_3	Quarterly	461	50	9.484	-0.193	0.014	0.694	0.409
NO3NO2_3	Quarterly	462	58	-2.404	0.126	0.138	9.128	0.004
NO3NO2_3	Quarterly	463	53	5.496	0.041	0.000	0.010	0.920
NO3NO2_3	Quarterly	464	55	-2.867	0.354	0.024	1.342	0.252
NO3NO2_3	Quarterly	473	58	2.888	0.123	0.009	0.528	0.470
NO3NO2_3	Quarterly	474	57	3.008	0.119	0.008	0.475	0.494
NO3NO2_3	Quarterly	475	57	-0.739	0.233	0.032	1.851	0.179
NO3NO2_3	Quarterly	481	55	-6.360	0.445	0.125	7.720	0.008
NO3NO2_3	Quarterly	482	55	-6.557	0.445	0.123	7.576	0.008
NO3NO2_3	Quarterly	484	53	-3.965	0.349	0.080	4.510	0.038

Oxygen

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
OXYGEN1	Monthly	5	208	9.011	-0.033	0.009	1.844	0.176
OXYGEN1	Monthly	7	219	8.656	-0.055	0.023	5.233	0.023
OXYGEN1	Monthly	12	139	8.805	-0.058	0.016	2.304	0.131
OXYGEN1	Monthly	13	183	8.184	-0.033	0.005	0.903	0.343
OXYGEN1	Monthly	14	204	9.914	-0.064	0.041	8.664	0.004
OXYGEN1	Monthly	15	205	8.523	-0.030	0.007	1.347	0.247
OXYGEN1	Monthly	16	87	2.134	0.217	0.055	5.037	0.027
OXYGEN1	Monthly	18	198	7.653	-0.035	0.009	1.717	0.192
OXYGEN1	Monthly	21	196	9.452	-0.054	0.019	3.824	0.052
OXYGEN1	Monthly	22	211	10.352	-0.078	0.036	7.832	0.006
OXYGEN1	Monthly	34	195	9.000	-0.069	0.032	6.355	0.013
OXYGEN1	Monthly	35	180	10.293	-0.074	0.032	5.923	0.016
OXYGEN1	Monthly	36	179	8.651	-0.008	0.000	0.068	0.795
OXYGEN1	Monthly	37	184	8.265	-0.042	0.013	2.378	0.125
OXYGEN1	Monthly	38	182	5.942	0.062	0.016	2.996	0.085
OXYGEN1	Monthly	52	150	9.902	-0.052	0.010	1.550	0.215
OXYGEN1	Monthly	53	154	10.250	-0.072	0.021	3.215	0.075
OXYGEN1	Monthly	54	151	11.294	-0.099	0.037	5.769	0.018
OXYGEN1	Quarterly	435	61	9.427	-0.013	0.001	0.041	0.840
OXYGEN1	Quarterly	461	12	15.156	-0.264	0.198	2.716	0.128
OXYGEN1	Quarterly	462	8	3.997	0.093	0.019	0.139	0.721
OXYGEN1	Quarterly	463	13	4.035	0.119	0.127	1.748	0.211
OXYGEN1	Quarterly	464	11	12.437	-0.167	0.129	1.475	0.252
OXYGEN1	Quarterly	473	60	11.134	-0.076	0.020	1.175	0.283
OXYGEN1	Quarterly	474	60	10.815	-0.056	0.009	0.516	0.476
OXYGEN1	Quarterly	475	60	11.002	-0.064	0.012	0.692	0.409
OXYGEN1	Quarterly	481	59	13.279	-0.151	0.094	6.023	0.017
OXYGEN1	Quarterly	482	56	13.663	-0.163	0.068	4.029	0.050
OXYGEN1	Quarterly	484	58	9.348	-0.029	0.003	0.193	0.662
OXYGEN3	Monthly	5	196	9.002	-0.049	0.021	4.231	0.041
OXYGEN3	Monthly	7	57	6.962	0.006	0.000	0.012	0.914
OXYGEN3	Monthly	18	172	8.394	-0.070	0.028	4.939	0.028
OXYGEN3	Monthly	21	189	8.415	-0.098	0.034	6.595	0.011
OXYGEN3	Monthly	22	209	9.461	-0.154	0.066	14.623	0.000
OXYGEN3	Monthly	35	182	9.429	-0.155	0.060	11.556	0.001
OXYGEN3	Monthly	36	178	9.022	-0.139	0.045	8.355	0.004
OXYGEN3	Monthly	37	181	7.270	-0.016	0.002	0.296	0.587
OXYGEN3	Monthly	38	179	6.045	0.025	0.003	0.480	0.489
OXYGEN3	Monthly	52	148	7.332	-0.096	0.046	7.096	0.009
OXYGEN3	Monthly	53	154	7.887	-0.111	0.073	12.060	0.001
OXYGEN3	Monthly	54	151	8.192	-0.128	0.068	10.947	0.001
OXYGEN3	Quarterly	435	60	7.760	-0.098	0.031	1.879	0.176
OXYGEN3	Quarterly	461	51	9.466	-0.080	0.012	0.603	0.441
OXYGEN3	Quarterly	462	57	8.816	-0.049	0.016	0.901	0.347
OXYGEN3	Quarterly	463	55	4.516	0.099	0.035	1.983	0.165
OXYGEN3	Quarterly	464	56	9.033	-0.061	0.025	1.431	0.237
OXYGEN3	Quarterly	473	60	8.608	-0.136	0.053	3.318	0.074
OXYGEN3	Quarterly	474	58	7.293	-0.083	0.021	1.223	0.274
OXYGEN3	Quarterly	475	59	9.621	-0.169	0.091	5.838	0.019
OXYGEN3	Quarterly	481	56	9.109	-0.141	0.048	2.747	0.103
OXYGEN3	Quarterly	482	56	8.165	-0.113	0.065	3.852	0.055
OXYGEN3	Quarterly	484	55	7.847	-0.103	0.044	2.488	0.121

Phosphate

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
PHOSPHA1	Monthly	5	206	0.904	-0.009	0.003	0.646	0.423
PHOSPHA1	Monthly	7	216	0.144	0.017	0.012	2.577	0.110
PHOSPHA1	Monthly	12	137	0.476	0.005	0.001	0.114	0.737
PHOSPHA1	Monthly	13	180	0.638	0.003	0.000	0.077	0.782
PHOSPHA1	Monthly	14	205	2.672	-0.033	0.009	1.892	0.170
PHOSPHA1	Monthly	15	206	3.787	-0.092	0.127	29.942	0.000
PHOSPHA1	Monthly	16	86	20.184	-0.760	0.171	17.531	0.000
PHOSPHA1	Monthly	18	200	7.008	-0.160	0.137	31.542	0.000
PHOSPHA1	Monthly	21	195	0.829	-0.010	0.008	1.633	0.203
PHOSPHA1	Monthly	22	211	1.101	-0.021	0.016	3.442	0.065
PHOSPHA1	Monthly	34	195	1.222	-0.018	0.021	4.226	0.041
PHOSPHA1	Monthly	35	183	1.384	-0.031	0.034	6.341	0.013
PHOSPHA1	Monthly	36	179	0.921	-0.018	0.028	5.056	0.026
PHOSPHA1	Monthly	37	185	1.154	-0.013	0.012	2.317	0.130
PHOSPHA1	Monthly	38	187	4.042	-0.093	0.093	19.106	0.000
PHOSPHA1	Monthly	52	150	1.452	-0.030	0.007	1.107	0.294
PHOSPHA1	Monthly	53	156	0.776	-0.012	0.005	0.727	0.395
PHOSPHA1	Monthly	54	152	0.529	-0.005	0.002	0.284	0.595
PHOSPHA1	Quarterly	435	60	0.564	0.002	0.000	0.008	0.927
PHOSPHA1	Quarterly	461	12	9.818	-0.263	0.500	10.981	0.007
PHOSPHA1	Quarterly	462	9	0.504	0.004	0.000	0.003	0.960
PHOSPHA1	Quarterly	463	12	15.172	-0.428	0.548	13.355	0.004
PHOSPHA1	Quarterly	464	12	11.105	-0.318	0.689	24.393	0.000
PHOSPHA1	Quarterly	473	61	0.974	-0.021	0.123	8.450	0.005
PHOSPHA1	Quarterly	474	60	0.725	-0.011	0.033	2.001	0.162
PHOSPHA1	Quarterly	475	59	1.065	-0.025	0.151	10.306	0.002
PHOSPHA1	Quarterly	481	58	0.440	-0.005	0.008	0.441	0.509
PHOSPHA1	Quarterly	482	58	0.266	0.002	0.001	0.041	0.840
PHOSPHA1	Quarterly	484	56	0.328	0.000	0.000	0.000	0.998
PHOSPHA3	Monthly	5	196	0.988	-0.009	0.005	0.947	0.332
PHOSPHA3	Monthly	7	57	1.631	-0.038	0.150	9.867	0.003
PHOSPHA3	Monthly	18	173	3.755	-0.049	0.024	4.278	0.040
PHOSPHA3	Monthly	21	193	1.079	-0.003	0.000	0.024	0.877
PHOSPHA3	Monthly	22	210	0.964	0.010	0.001	0.193	0.661
PHOSPHA3	Monthly	35	183	1.027	0.005	0.000	0.046	0.831
PHOSPHA3	Monthly	36	178	0.504	0.023	0.005	0.918	0.339
PHOSPHA3	Monthly	37	183	1.678	-0.029	0.045	8.602	0.004
PHOSPHA3	Monthly	38	182	5.204	-0.125	0.113	23.155	0.000
PHOSPHA3	Monthly	52	148	1.544	-0.026	0.005	0.743	0.390
PHOSPHA3	Monthly	53	155	1.703	-0.030	0.005	0.800	0.372
PHOSPHA3	Monthly	54	153	0.497	0.009	0.004	0.583	0.446
PHOSPHA3	Quarterly	435	58	0.501	0.025	0.010	0.589	0.446
PHOSPHA3	Quarterly	461	52	4.285	-0.091	0.071	3.919	0.053
PHOSPHA3	Quarterly	462	59	1.098	-0.022	0.052	3.168	0.080
PHOSPHA3	Quarterly	463	56	9.712	-0.277	0.221	15.589	0.000
PHOSPHA3	Quarterly	464	56	3.137	-0.072	0.132	8.334	0.006
PHOSPHA3	Quarterly	473	58	1.090	0.005	0.000	0.017	0.897
PHOSPHA3	Quarterly	474	57	1.162	0.002	0.000	0.002	0.962
PHOSPHA3	Quarterly	475	57	0.900	0.012	0.002	0.130	0.720
PHOSPHA3	Quarterly	481	55	0.088	0.021	0.035	1.973	0.166
PHOSPHA3	Quarterly	482	54	0.471	0.006	0.003	0.176	0.676
PHOSPHA3	Quarterly	484	53	0.378	0.011	0.010	0.518	0.475

Salinity

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
SAL1	Monthly	5	206	23.327	-0.043	0.001	0.290	0.591
SAL1	Monthly	7	219	18.780	-0.045	0.002	0.534	0.466
SAL1	Monthly	12	139	14.168	-0.186	0.036	5.126	0.025
SAL1	Monthly	13	182	11.432	-0.108	0.011	1.945	0.165
SAL1	Monthly	14	202	8.437	-0.176	0.050	10.516	0.001
SAL1	Monthly	15	205	6.695	-0.124	0.047	9.967	0.002
SAL1	Monthly	16	84	2.932	-0.048	0.002	0.188	0.666
SAL1	Monthly	18	198	2.326	-0.051	0.031	6.406	0.012
SAL1	Monthly	21	190	26.483	-0.017	0.000	0.055	0.816
SAL1	Monthly	22	210	26.399	-0.013	0.000	0.035	0.851
SAL1	Monthly	34	195	25.626	-0.053	0.003	0.671	0.414
SAL1	Monthly	35	184	30.289	-0.152	0.020	3.766	0.054
SAL1	Monthly	36	180	29.275	-0.111	0.010	1.778	0.184
SAL1	Monthly	37	184	26.498	-0.068	0.006	1.012	0.316
SAL1	Monthly	38	185	6.818	-0.140	0.077	15.389	0.000
SAL1	Monthly	52	150	27.265	-0.025	0.000	0.055	0.815
SAL1	Monthly	53	156	26.070	0.021	0.000	0.042	0.838
SAL1	Monthly	54	152	27.592	-0.045	0.001	0.190	0.664
SAL1	Quarterly	435	62	26.990	-0.062	0.002	0.152	0.698
SAL1	Quarterly	461	12	2.239	-0.016	0.002	0.019	0.892
SAL1	Quarterly	462	9	61.014	-1.440	0.275	3.040	0.119
SAL1	Quarterly	463	12	4.649	-0.084	0.062	0.724	0.413
SAL1	Quarterly	464	12	5.956	-0.132	0.120	1.506	0.245
SAL1	Quarterly	473	63	28.716	-0.141	0.013	0.835	0.364
SAL1	Quarterly	474	61	26.836	-0.069	0.003	0.199	0.657
SAL1	Quarterly	475	61	28.318	-0.119	0.009	0.567	0.455
SAL1	Quarterly	481	57	27.160	-0.041	0.001	0.059	0.809
SAL1	Quarterly	482	58	29.975	-0.156	0.014	0.814	0.371
SAL1	Quarterly	484	57	31.827	-0.176	0.019	1.099	0.299
SAL3	Monthly	5	195	22.462	0.017	0.000	0.041	0.840
SAL3	Monthly	7	56	22.438	-0.124	0.024	1.325	0.255
SAL3	Monthly	18	171	4.875	-0.132	0.120	23.171	0.000
SAL3	Monthly	21	188	28.718	0.028	0.002	0.285	0.594
SAL3	Monthly	22	204	28.040	0.098	0.020	4.053	0.045
SAL3	Monthly	35	185	29.694	0.040	0.003	0.603	0.439
SAL3	Monthly	36	179	31.018	0.005	0.000	0.009	0.926
SAL3	Monthly	37	181	29.237	-0.152	0.028	5.217	0.024
SAL3	Monthly	38	180	7.281	-0.154	0.086	16.756	0.000
SAL3	Monthly	52	148	34.839	0.025	0.004	0.604	0.438
SAL3	Monthly	53	154	34.057	0.055	0.037	5.841	0.017
SAL3	Monthly	54	151	32.859	0.075	0.038	5.972	0.016
SAL3	Quarterly	435	58	31.762	-0.026	0.001	0.069	0.793
SAL3	Quarterly	461	52	6.623	-0.141	0.087	4.835	0.032
SAL3	Quarterly	462	57	24.035	-0.194	0.060	3.555	0.065
SAL3	Quarterly	463	56	6.158	-0.124	0.063	3.709	0.059
SAL3	Quarterly	464	55	8.608	-0.190	0.100	5.988	0.018
SAL3	Quarterly	473	59	31.380	0.000	0.000	0.000	0.996
SAL3	Quarterly	474	57	31.501	-0.023	0.000	0.024	0.878
SAL3	Quarterly	475	58	29.747	0.056	0.006	0.335	0.565
SAL3	Quarterly	481	54	34.980	0.023	0.007	0.384	0.538
SAL3	Quarterly	482	56	36.174	-0.026	0.004	0.203	0.654
SAL3	Quarterly	484	52	34.424	0.042	0.013	0.676	0.415

Silica

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
SILICA1	Quarterly	475	60	1.090	-0.021	0.052	3.231	0.077
SILICA1	Quarterly	481	59	0.520	-0.004	0.002	0.134	0.715
SILICA1	Quarterly	482	58	0.438	0.000	0.000	0.001	0.982
SILICA1	Quarterly	484	57	0.508	-0.005	0.003	0.160	0.690
SILICA3	Monthly	5	198	3.460	-0.094	0.171	40.502	0.000
SILICA3	Monthly	7	57	2.446	-0.046	0.045	2.667	0.108
SILICA3	Monthly	18	171	2.786	0.006	0.000	0.041	0.839
SILICA3	Monthly	21	196	1.947	-0.043	0.024	4.844	0.029
SILICA3	Monthly	22	212	1.675	-0.033	0.024	5.298	0.022
SILICA3	Monthly	35	185	1.005	-0.013	0.009	1.733	0.190
SILICA3	Monthly	36	180	0.526	0.003	0.001	0.095	0.758
SILICA3	Monthly	37	185	1.281	-0.022	0.032	6.045	0.015
SILICA3	Monthly	38	181	5.985	-0.134	0.151	31.985	0.000
SILICA3	Monthly	52	150	0.333	0.002	0.001	0.086	0.769
SILICA3	Monthly	53	157	0.383	0.000	0.000	0.002	0.961
SILICA3	Monthly	54	154	0.248	0.006	0.004	0.557	0.457
SILICA3	Quarterly	435	58	0.609	0.003	0.000	0.019	0.890
SILICA3	Quarterly	461	51	6.725	-0.156	0.206	12.949	0.001
SILICA3	Quarterly	462	58	2.191	-0.038	0.032	1.867	0.177
SILICA3	Quarterly	463	56	9.668	-0.261	0.284	21.860	0.000
SILICA3	Quarterly	464	56	4.387	-0.091	0.106	6.549	0.013
SILICA3	Quarterly	473	59	0.275	0.013	0.009	0.529	0.470
SILICA3	Quarterly	474	58	0.514	0.006	0.002	0.086	0.770
SILICA3	Quarterly	475	58	0.096	0.021	0.020	1.184	0.281
SILICA3	Quarterly	481	56	0.463	-0.001	0.000	0.003	0.958
SILICA3	Quarterly	482	56	0.330	0.002	0.001	0.045	0.833
SILICA3	Quarterly	484	54	0.795	-0.012	0.012	0.640	0.427
SILICA1	Monthly	5	207	2.938	-0.076	0.107	24.756	0.000
SILICA1	Monthly	7	217	3.166	-0.070	0.092	21.756	0.000
SILICA1	Monthly	12	140	6.181	-0.174	0.175	29.481	0.000
SILICA1	Monthly	13	182	5.302	-0.140	0.172	37.721	0.000
SILICA1	Monthly	14	203	4.280	-0.074	0.069	14.974	0.000
SILICA1	Monthly	15	205	6.072	-0.150	0.231	61.388	0.000
SILICA1	Monthly	16	85	16.958	-0.581	0.200	21.053	0.000
SILICA1	Monthly	18	198	6.451	-0.113	0.062	13.024	0.000
SILICA1	Monthly	21	199	2.914	-0.083	0.086	18.652	0.000
SILICA1	Monthly	22	213	2.364	-0.067	0.064	14.498	0.000
SILICA1	Monthly	34	196	3.049	-0.076	0.071	14.831	0.000
SILICA1	Monthly	35	185	1.281	-0.031	0.090	18.293	0.000
SILICA1	Monthly	36	181	0.866	-0.018	0.044	8.349	0.004
SILICA1	Monthly	37	186	1.541	-0.031	0.044	8.506	0.004
SILICA1	Monthly	38	186	5.746	-0.127	0.144	31.037	0.000
SILICA1	Monthly	52	151	0.633	-0.008	0.008	1.135	0.288
SILICA1	Monthly	53	158	0.617	-0.010	0.011	1.711	0.193
SILICA1	Monthly	54	154	0.608	-0.009	0.012	1.805	0.181
SILICA1	Quarterly	435	61	1.365	-0.030	0.081	5.317	0.025
SILICA1	Quarterly	461	12	-1.656	0.113	0.149	1.934	0.192
SILICA1	Quarterly	462	9	-8.306	0.314	0.213	2.168	0.179
SILICA1	Quarterly	463	12	3.159	-0.040	0.048	0.554	0.472
SILICA1	Quarterly	464	12	1.326	0.006	0.001	0.010	0.921
SILICA1	Quarterly	473	62	1.125	-0.023	0.054	3.450	0.068
SILICA1	Quarterly	474	61	0.924	-0.016	0.021	1.287	0.261

Sulfate

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
SULFATE1	Monthly	5	207	-221.740	59.430	0.226	60.200	0.000
SULFATE1	Monthly	7	218	-409.610	54.115	0.249	71.990	0.000
SULFATE1	Monthly	12	139	-28.650	18.377	0.065	9.629	0.002
SULFATE1	Monthly	13	182	-145.470	23.654	0.070	13.608	0.000
SULFATE1	Monthly	14	202	85.900	4.719	0.010	1.939	0.165
SULFATE1	Monthly	15	203	-3.900	6.672	0.035	7.230	0.008
SULFATE1	Monthly	16	85	177.460	-5.248	0.015	1.265	0.264
SULFATE1	Monthly	18	197	96.800	1.571	0.001	0.106	0.745
SULFATE1	Monthly	21	197	-454.050	77.077	0.331	96.997	0.000
SULFATE1	Monthly	22	213	-427.330	76.959	0.336	107.411	0.000
SULFATE1	Monthly	34	195	-394.350	68.280	0.281	75.871	0.000
SULFATE1	Monthly	35	184	-96.260	65.674	0.233	55.693	0.000
SULFATE1	Monthly	36	179	-12.250	63.075	0.198	43.849	0.000
SULFATE1	Monthly	37	186	-101.810	61.836	0.226	54.003	0.000
SULFATE1	Monthly	38	183	59.520	3.426	0.014	2.519	0.114
SULFATE1	Monthly	52	152	11.400	63.247	0.159	28.608	0.000
SULFATE1	Monthly	53	158	44.520	63.741	0.171	32.307	0.000
SULFATE1	Monthly	54	153	196.830	57.309	0.131	22.899	0.000
SULFATE1	Quarterly	435	61	-406.920	71.870	0.246	19.524	0.000
SULFATE1	Quarterly	461	12	-150.270	10.736	0.228	3.242	0.099
SULFATE1	Quarterly	462	9	3309.880	-71.315	0.064	0.543	0.482
SULFATE1	Quarterly	463	12	-17.990	6.613	0.168	2.215	0.165
SULFATE1	Quarterly	464	12	-11.670	5.919	0.089	1.068	0.324
SULFATE1	Quarterly	473	62	-197.610	64.211	0.196	14.848	0.000
SULFATE1	Quarterly	474	61	-391.410	73.780	0.204	15.348	0.000
SULFATE1	Quarterly	475	60	-133.970	61.164	0.186	13.505	0.001
SULFATE1	Quarterly	481	60	-30.870	62.953	0.192	14.017	0.000
SULFATE1	Quarterly	482	60	-153.900	66.807	0.207	15.415	0.000
SULFATE1	Quarterly	484	57	-7.590	64.735	0.195	13.581	0.001
SULFATE3	Monthly	5	197	-420.310	68.546	0.283	77.427	0.000
SULFATE3	Monthly	7	57	-19.140	43.846	0.136	8.798	0.004
SULFATE3	Monthly	18	170	46.970	2.962	0.014	2.475	0.118
SULFATE3	Monthly	21	193	-499.110	88.183	0.432	145.957	0.000
SULFATE3	Monthly	22	211	-658.440	97.160	0.485	197.735	0.000
SULFATE3	Monthly	35	184	-254.460	83.420	0.369	106.920	0.000
SULFATE3	Monthly	36	179	-161.690	80.863	0.338	90.764	0.000
SULFATE3	Monthly	37	184	-137.850	64.081	0.243	58.746	0.000
SULFATE3	Monthly	38	179	79.890	2.956	0.010	1.735	0.189
SULFATE3	Monthly	52	148	350.950	73.935	0.269	54.064	0.000
SULFATE3	Monthly	53	157	612.480	66.407	0.220	44.112	0.000
SULFATE3	Monthly	54	154	341.400	74.170	0.263	54.624	0.000
SULFATE3	Quarterly	435	59	-441.260	87.970	0.414	40.915	0.000
SULFATE3	Quarterly	461	52	-104.100	10.911	0.042	2.231	0.141
SULFATE3	Quarterly	462	59	-32.220	41.171	0.138	9.264	0.004
SULFATE3	Quarterly	463	56	-19.190	8.475	0.030	1.672	0.201
SULFATE3	Quarterly	464	57	-100.970	11.712	0.052	3.049	0.086
SULFATE3	Quarterly	473	59	-475.790	90.688	0.386	36.430	0.000
SULFATE3	Quarterly	474	58	-288.840	84.073	0.357	31.692	0.000
SULFATE3	Quarterly	475	58	-473.370	89.469	0.390	36.418	0.000
SULFATE3	Quarterly	481	57	5.360	84.489	0.285	22.337	0.000
SULFATE3	Quarterly	482	56	-32.520	83.047	0.391	35.364	0.000
SULFATE3	Quarterly	484	55	1.290	83.633	0.378	32.863	0.000

Suspended Solids

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
SS1	Quarterly	482	59	63.465	-1.529	0.145	9.806	0.003
SS1	Quarterly	484	56	88.211	-2.303	0.172	11.430	0.001
SS3	Monthly	5	196	39.295	0.867	0.004	0.760	0.384
SS3	Monthly	7	57	116.326	-1.017	0.003	0.158	0.692
SS3	Monthly	18	171	212.123	-4.179	0.040	7.080	0.009
SS3	Monthly	21	194	106.509	-2.167	0.033	6.656	0.011
SS3	Monthly	22	211	128.655	-3.096	0.051	11.279	0.001
SS3	Monthly	35	181	79.160	-1.471	0.037	6.893	0.009
SS3	Monthly	36	178	102.442	-2.242	0.059	11.084	0.001
SS3	Monthly	37	182	146.179	-2.572	0.042	7.972	0.005
SS3	Monthly	38	182	247.085	-7.018	0.108	21.851	0.000
SS3	Monthly	52	151	39.505	-0.107	0.000	0.027	0.870
SS3	Monthly	53	157	43.853	-0.318	0.002	0.266	0.607
SS3	Monthly	54	153	62.276	-1.059	0.023	3.595	0.060
SS3	Quarterly	435	60	128.177	-3.318	0.188	13.662	0.000
SS3	Quarterly	461	52	82.090	-1.449	0.019	0.986	0.325
SS3	Quarterly	462	59	51.266	0.145	0.000	0.016	0.900
SS3	Quarterly	463	54	170.034	-3.792	0.042	2.349	0.131
SS3	Quarterly	464	56	58.470	-0.039	0.000	0.001	0.979
SS3	Quarterly	473	59	86.690	-1.761	0.043	2.578	0.114
SS3	Quarterly	474	58	111.451	-2.621	0.160	10.872	0.002
SS3	Quarterly	475	58	136.334	-3.459	0.172	11.875	0.001
SS3	Quarterly	481	56	63.731	-1.169	0.038	2.187	0.145
SS3	Quarterly	482	55	54.014	-0.528	0.004	0.193	0.663
SS3	Quarterly	484	54	55.791	-0.702	0.014	0.765	0.386

Total Dissolved Solids

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
TDS1	Monthly	5	209	21267.070	141.780	0.010	2.078	0.151
TDS1	Monthly	7	217	19361.220	23.600	0.000	0.094	0.760
TDS1	Monthly	12	140	14387.920	-132.690	0.012	1.759	0.187
TDS1	Monthly	13	183	11863.710	-79.090	0.004	0.783	0.378
TDS1	Monthly	14	204	8343.760	-157.650	0.033	6.959	0.009
TDS1	Monthly	15	206	7136.380	-126.810	0.041	8.706	0.004
TDS1	Monthly	16	84	3860.470	-79.330	0.005	0.433	0.512
TDS1	Monthly	18	197	2771.520	-58.190	0.024	4.782	0.030
TDS1	Monthly	21	197	26765.320	102.260	0.006	1.118	0.292
TDS1	Monthly	22	211	27576.870	62.710	0.002	0.447	0.504
TDS1	Monthly	34	195	24733.280	94.860	0.005	1.011	0.316
TDS1	Monthly	35	184	36945.600	-254.670	0.031	5.794	0.017
TDS1	Monthly	36	180	33653.780	-136.230	0.008	1.362	0.245
TDS1	Monthly	37	184	28257.100	-26.620	0.001	0.097	0.756
TDS1	Monthly	38	187	7524.880	-155.690	0.070	13.982	0.000
TDS1	Monthly	52	152	27217.530	99.290	0.004	0.662	0.417
TDS1	Monthly	53	158	29082.820	27.600	0.000	0.057	0.811
TDS1	Monthly	54	154	27489.520	58.930	0.002	0.256	0.613
TDS1	Quarterly	435	60	26911.11	49.910	0.001	0.079	0.780
TDS1	Quarterly	461	11	-15.920	135.600	0.004	0.039	0.847
TDS1	Quarterly	462	8	58625.210	-1281.130	0.189	1.632	0.242
TDS1	Quarterly	463	11	5412.740	-96.180	0.070	0.748	0.407
TDS1	Quarterly	464	11	7051.280	-159.290	0.147	1.730	0.218
TDS1	Quarterly	473	62	30671.450	-114.120	0.007	0.455	0.503
TDS1	Quarterly	474	59	28623.640	-28.230	0.000	0.025	0.876
TDS1	Quarterly	475	58	30231.340	-80.550	0.004	0.204	0.653
TDS1	Quarterly	481	58	30009.070	-18.520	0.000	0.009	0.924
TDS1	Quarterly	482	59	31303.720	-85.070	0.003	0.182	0.671
TDS1	Quarterly	484	56	34668.070	-142.410	0.009	0.492	0.486
TDS3	Monthly	5	196	20248.420	231.940	0.022	4.308	0.039
TDS3	Monthly	7	57	23457.270	-99.580	0.007	0.405	0.527
TDS3	Monthly	18	171	5825.040	-153.250	0.090	16.800	0.000
TDS3	Monthly	21	194	30016.910	122.040	0.011	2.090	0.150
TDS3	Monthly	22	210	30429.900	159.040	0.024	5.068	0.025
TDS3	Monthly	35	181	33986.270	29.150	0.001	0.106	0.745
TDS3	Monthly	36	178	32759.030	91.020	0.005	0.870	0.352
TDS3	Monthly	37	182	31048.340	-113.320	0.010	1.886	0.171
TDS3	Monthly	38	182	7323.100	-143.920	0.060	11.564	0.001
TDS3	Monthly	52	151	40224.770	2.600	0.000	0.001	0.976
TDS3	Monthly	53	157	40711.440	-3.640	0.000	0.002	0.964
TDS3	Monthly	54	153	37571.350	69.790	0.007	1.067	0.303
TDS3	Quarterly	435	60	33184.700	65.520	0.005	0.311	0.579
TDS3	Quarterly	461	52	6278.030	-108.560	0.032	1.704	0.198
TDS3	Quarterly	462	59	21159.310	-5.590	0.000	0.002	0.969
TDS3	Quarterly	463	54	6173.520	-97.210	0.021	1.138	0.291
TDS3	Quarterly	464	56	8915.580	-181.970	0.071	4.181	0.046
TDS3	Quarterly	473	59	29121.660	203.510	0.045	2.727	0.104
TDS3	Quarterly	474	58	34172.850	30.030	0.001	0.064	0.801
TDS3	Quarterly	475	58	31842.170	135.920	0.014	0.814	0.371
TDS3	Quarterly	481	56	36529.860	123.860	0.024	1.326	0.254
TDS3	Quarterly	482	55	40386.460	-10.510	0.000	0.005	0.947
TDS3	Quarterly	484	53	37129.390	106.010	0.007	0.357	0.553

Variable	Sample	Station	N	TKN		r-square	F	P>F
				Intercept	Slope			
TKN1	Quarterly	481	59	-51.719	3.254	0.270	21.474	0.000
TKN1	Quarterly	482	58	-77.743	4.348	0.250	19.021	0.000
TKN1	Quarterly	484	58	-54.681	3.299	0.244	18.424	0.000
TKN3	Monthly	5	196	-121.392	6.969	0.297	82.486	0.000
TKN3	Monthly	7	56	-101.932	6.974	0.325	26.463	0.000
TKN3	Monthly	18	170	-44.907	4.906	0.154	30.716	0.000
TKN3	Monthly	21	191	-103.520	5.564	0.450	155.169	0.000
TKN3	Monthly	22	206	-96.334	5.165	0.457	172.676	0.000
TKN3	Monthly	35	179	-109.826	5.710	0.356	98.531	0.000
TKN3	Monthly	36	176	-106.871	5.571	0.367	101.297	0.000
TKN3	Monthly	37	181	-98.189	5.992	0.351	97.167	0.000
TKN3	Monthly	38	176	-69.670	6.348	0.231	52.513	0.000
TKN3	Monthly	52	147	-91.998	4.440	0.344	76.483	0.000
TKN3	Monthly	53	153	-101.796	4.817	0.355	83.554	0.000
TKN3	Monthly	54	149	-78.232	4.040	0.234	45.302	0.000
TKN3	Quarterly	435	58	-74.008	4.264	0.429	42.791	0.000
TKN3	Quarterly	461	49	-42.171	5.251	0.202	12.139	0.001
TKN3	Quarterly	462	57	-95.039	6.541	0.307	24.838	0.000
TKN3	Quarterly	463	53	-47.887	5.200	0.215	14.258	0.000
TKN3	Quarterly	464	50	-77.045	6.437	0.215	13.412	0.001
TKN3	Quarterly	473	59	-72.145	4.109	0.426	43.082	0.000
TKN3	Quarterly	474	59	-73.115	4.088	0.405	39.539	0.000
TKN3	Quarterly	475	58	-71.085	4.112	0.382	35.168	0.000
TKN3	Quarterly	481	56	-71.862	3.689	0.453	45.462	0.000
TKN3	Quarterly	482	56	-68.176	3.493	0.367	31.839	0.000
TKN3	Quarterly	484	55	-62.665	3.292	0.362	30.592	0.000

Variable	Sample	Station	N	TP		r-square	F	P>F
				Intercept	Slope			
T_PHOS1	Quarterly	481	59	-9.819	0.463	0.092	5.881	0.018
T_PHOS1	Quarterly	482	59	-9.573	0.454	0.097	6.258	0.015
T_PHOS1	Quarterly	484	57	-10.265	0.462	0.093	5.739	0.020
T_PHOS3	Monthly	5	195	-5.729	0.377	0.198	47.792	0.000
T_PHOS3	Monthly	7	56	-2.073	0.274	0.136	8.627	0.005
T_PHOS3	Monthly	18	171	-2.910	0.395	0.106	20.262	0.000
T_PHOS3	Monthly	21	194	-6.451	0.377	0.210	51.312	0.000
T_PHOS3	Monthly	22	210	-7.051	0.407	0.223	59.945	0.000
T_PHOS3	Monthly	35	183	-7.320	0.418	0.201	45.822	0.000
T_PHOS3	Monthly	36	178	-7.886	0.429	0.198	43.638	0.000
T_PHOS3	Monthly	37	182	-4.608	0.348	0.193	43.147	0.000
T_PHOS3	Monthly	38	179	2.520	0.137	0.022	3.976	0.048
T_PHOS3	Monthly	52	149	-8.992	0.427	0.283	58.484	0.000
T_PHOS3	Monthly	53	155	-9.587	0.457	0.211	41.219	0.000
T_PHOS3	Monthly	54	151	-8.601	0.418	0.285	59.684	0.000
T_PHOS3	Quarterly	435	60	-10.158	0.533	0.100	6.525	0.013
T_PHOS3	Quarterly	461	50	4.023	0.105	0.020	1.011	0.320
T_PHOS3	Quarterly	462	58	-2.266	0.254	0.171	11.769	0.001
T_PHOS3	Quarterly	463	54	14.117	-0.195	0.017	0.889	0.350
T_PHOS3	Quarterly	464	55	2.665	0.125	0.028	1.568	0.216
T_PHOS3	Quarterly	473	60	-8.667	0.479	0.096	6.272	0.015
T_PHOS3	Quarterly	474	59	-7.842	0.451	0.091	5.790	0.019
T_PHOS3	Quarterly	475	59	-7.635	0.437	0.121	7.994	0.006
T_PHOS3	Quarterly	481	56	-7.950	0.399	0.169	11.219	0.001
T_PHOS3	Quarterly	482	55	-6.802	0.359	0.180	11.892	0.001
T_PHOS3	Quarterly	484	54	-7.807	0.390	0.160	10.059	0.003

Turbidity

Variable	Sample	Station	N	Intercept	Slope	r-square	F	P>F
TURBID1	Monthly	5	202	54.149	-1.301	0.153	36.175	0.000
TURBID1	Monthly	7	212	73.347	-1.921	0.343	110.107	0.000
TURBID1	Monthly	12	141	77.921	-2.037	0.215	38.392	0.000
TURBID1	Monthly	13	178	85.795	-2.301	0.209	46.701	0.000
TURBID1	Monthly	14	198	140.346	-3.739	0.233	59.924	0.000
TURBID1	Monthly	15	199	133.275	-3.752	0.397	130.591	0.000
TURBID1	Monthly	16	86	471.267	-17.339	0.358	47.357	0.000
TURBID1	Monthly	18	193	210.275	-5.385	0.327	93.224	0.000
TURBID1	Monthly	21	189	36.492	-1.030	0.295	78.689	0.000
TURBID1	Monthly	22	204	33.762	-0.978	0.271	75.463	0.000
TURBID1	Monthly	34	189	66.895	-1.551	0.116	24.598	0.000
TURBID1	Monthly	35	175	29.276	-0.830	0.269	63.950	0.000
TURBID1	Monthly	36	171	27.606	-0.781	0.256	58.430	0.000
TURBID1	Monthly	37	177	69.529	-1.531	0.141	28.941	0.000
TURBID1	Monthly	38	180	180.027	-5.407	0.333	89.487	0.000
TURBID1	Monthly	52	143	13.651	-0.372	0.162	27.538	0.000
TURBID1	Monthly	53	149	16.419	-0.466	0.168	29.907	0.000
TURBID1	Monthly	54	145	13.333	-0.371	0.177	30.890	0.000
TURBID1	Quarterly	435	59	36.694	-1.067	0.169	11.811	0.001
TURBID1	Quarterly	461	11	237.995	-6.552	0.625	16.682	0.002
TURBID1	Quarterly	462	8	-23.773	1.173	0.090	0.694	0.432
TURBID1	Quarterly	463	11	308.916	-8.269	0.425	7.399	0.022
TURBID1	Quarterly	464	11	227.112	-6.143	0.706	24.017	0.001
TURBID1	Quarterly	473	60	43.585	-1.249	0.163	11.458	0.001
TURBID1	Quarterly	474	59	42.185	-1.227	0.140	9.451	0.003
TURBID1	Quarterly	475	58	44.119	-1.286	0.172	11.867	0.001
TURBID1	Quarterly	481	56	18.675	-0.522	0.213	14.888	0.000
TURBID1	Quarterly	482	56	20.867	-0.583	0.094	5.724	0.020
TURBID1	Quarterly	484	54	20.366	-0.578	0.087	5.060	0.029
TURBID3	Monthly	5	192	37.012	-0.386	0.003	0.532	0.467
TURBID3	Monthly	7	56	79.303	-1.614	0.058	3.395	0.071
TURBID3	Monthly	18	166	167.544	-3.678	0.157	30.764	0.000
TURBID3	Monthly	21	186	33.593	-0.633	0.030	5.718	0.018
TURBID3	Monthly	22	202	28.761	-0.580	0.043	9.032	0.003
TURBID3	Monthly	35	175	23.673	-0.413	0.023	4.044	0.046
TURBID3	Monthly	36	170	26.722	-0.523	0.032	5.606	0.019
TURBID3	Monthly	37	175	86.296	-1.989	0.190	40.769	0.000
TURBID3	Monthly	38	175	207.709	-6.126	0.306	76.627	0.000
TURBID3	Monthly	52	141	4.103	0.118	0.003	0.354	0.553
TURBID3	Monthly	53	148	-2.537	0.327	0.022	3.314	0.071
TURBID3	Monthly	54	145	8.452	-0.048	0.000	0.065	0.800
TURBID3	Quarterly	435	57	45.848	-1.223	0.132	8.521	0.005
TURBID3	Quarterly	461	51	130.984	-3.731	0.424	36.770	0.000
TURBID3	Quarterly	462	58	64.439	-1.454	0.169	11.576	0.001
TURBID3	Quarterly	463	53	209.004	-6.016	0.302	22.542	0.000
TURBID3	Quarterly	464	56	125.972	-3.348	0.325	26.425	0.000
TURBID3	Quarterly	473	57	34.192	-0.821	0.093	5.741	0.020
TURBID3	Quarterly	474	56	32.070	-0.767	0.120	7.473	0.008
TURBID3	Quarterly	475	56	43.391	-1.149	0.231	16.493	0.000
TURBID3	Quarterly	481	53	12.006	-0.218	0.017	0.911	0.344
TURBID3	Quarterly	482	52	13.515	-0.198	0.008	0.416	0.522
TURBID3	Quarterly	484	51	17.720	-0.365	0.029	1.481	0.229

Appendix F. Sample Distribution by month and latitude at offshore stations.

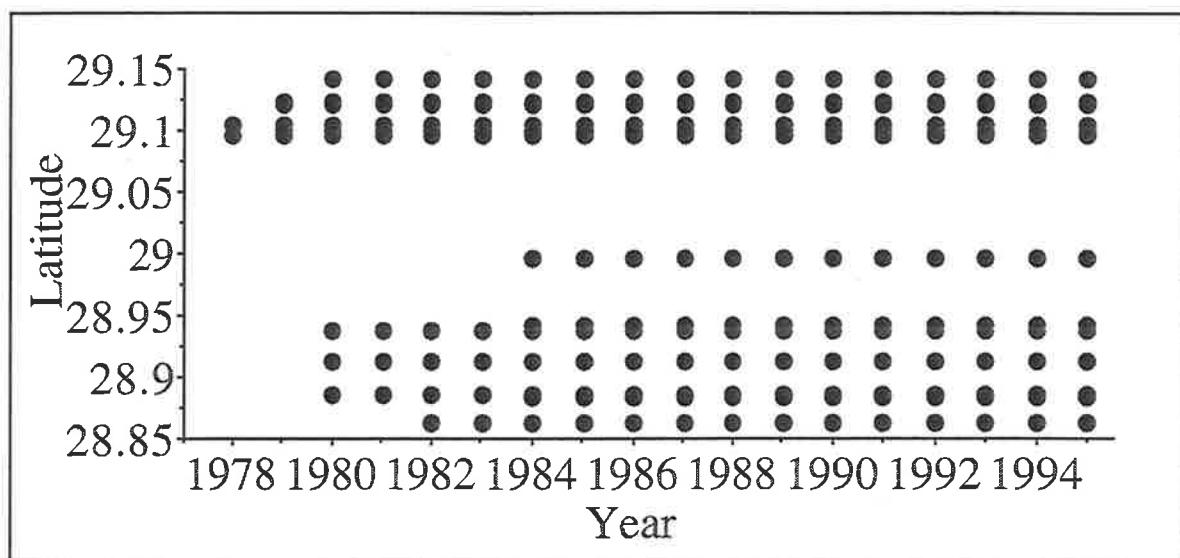


Figure F-1. The sampling distribution by month and latitude at offshore stations with long-term records (>10 years).